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Army

U.S. Surgeon-General's Office, Psychiatry and  
Neurology Consultants Division

A PRELIMINARY STUDY OF  
PSYCHOLOGICAL AND PSYCHIATRIC OBSERVATIONS OF MILITARY PERSONNEL  
UNDER NATURAL CONDITIONS OF SEVERE COLD, WIND AND ISOLATION

Fort Churchill Experiment

1947 - 1948



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SUMMARY AND CONCLUSIONS

The data upon which this study is based were assembled at Fort Churchill, Manitoba, Canada, during the winter of 1947-1948. The purposes of this study were:

- a. To gather preliminary information which will aid in determining the personality factors correlative with successful and unsuccessful adjustment to conditions of extreme cold accompanied by isolation so that techniques may be devised to select for this service the type of man who has the best chance of succeeding.
- b. To observe and evaluate reactions and changes in the personality and mental processes of military personnel under natural conditions of extreme cold accompanied by isolation.
- c. To gather information on problems of morale which present themselves under Arctic conditions.

One investigator, an Army medical officer with psychiatric training, was selected to live at Fort Churchill during the winter of 1947-1948 for the purpose of gathering data and making observations pertinent to the purposes of the study.

Because of administrative conditions beyond the control of the researcher a number of modifications and changes in the original methodology were required to be made.

The data which were gathered are tentative. No definite conclusions will be drawn from this limited preliminary and pilot study. This report summarizes certain objective and subjective observations



descriptive of a group of U. S. Army soldiers and officers living under the conditions existing at Fort Churchill during the winter 1947-1948. Assembling of data and observations began 3 December 1947 and continued until 1 May 1948.

From an analysis of the assembled data certain general trends may be indicated and inferences drawn which may be explored through further experimentations and research.

- a. Military personnel living under Arctic conditions experience certain emotional and mental reactions and personality changes which are believed to be peculiar to Arctic living.
- b. The reactions and changes vary in individuals in type as well as in degree and the amount of time spent in the Arctic has a direct influence on these reactions and changes.
- c. Personality changes tend to move in the direction of those that are needed for apparent satisfactory adjustment and tend to be established within the individual after approximately four to six months after arrival in the Arctic.
- d. Personality changes which were observed among military personnel were mainly in the direction of decreased drive, increased tolerance and patience, inflexibility of behavior, increased sociability and cheerfulness, indifference and relaxation of inhibitions, all of which appear to be related to satisfactory Arctic adjustment.
- e. Certain adjustive personality changes, such as increased euphoric tendencies and indifference, could, after a time, become personality liabilities. An apparent satisfactory Arctic adjustment may, therefore, be deceiving.
- f. The Arctic tends to magnify basic personality characteristics. It appears that the longer a man remains in the Arctic the greater is the degree of emotional stability required. A stable, well-integrated personality is the most important single requisite for longtime Arctic living.



- g. Between the second and four month after arrival in the Arctic, the soldiers' main emotional reactions are frustration, irritability and restlessness.
- h. There appears to be a decrease in mental alertness after several weeks of contact with severe Arctic conditions. This decrease in mental alertness is most marked during the midwinter period and approaches the normal level as the winter subsides.
- i. Above-average intelligence appears to be related to more successful performance and adjustment under Arctic conditions according to observations by the psychiatrist. However, successful adjustments are made by men below average in intelligence provided they have well-integrated personalities and further provided that the tasks assigned are within the capabilities of these individuals.
- j. The Control group (volunteers) as compared with the Experimental group (non-volunteers) made a better total adjustment during the study period. ✓
- k. Those study subjects who had been in the Arctic for from four to eight months before the study began made the most successful adjustment during the study period.

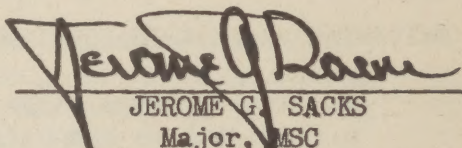
#### RECOMMENDATIONS

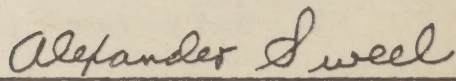
On the basis of the findings from this preliminary study the following recommendations are made:

- 1. That a large scale psychological and psychiatric research project be established further to explore the leads and trends indicated in this study.
- 2. That personnel assigned to the project suggested (in 1) above consist of clinical and research psychologists, neuropsychiatrists, psychiatric social workers, physical anthropologists and statisticians.
- 3. That future Arctic psychological and psychiatric research be conducted by a civilian university on a contract basis unless there is assurance that the Army is able adequately to staff the research teams necessary to complete the research.
- 4. That the suggested future research project be set up so that testing and data gathering on the study subjects can begin well in advance of their departure for Arctic areas and continue with the same men throughout the entire study period.



5. That research be carried out with several different groups of military personnel at several different Arctic localities by separate research teams.
6. That future research techniques for personality evaluation and change include projective techniques such as the Rorschach examination and Thematic Apperception Test as well as periodic comprehensive subjective interviews and an individual intelligence scale, e.g., Wechsler-Bellevue; that anthropological data and extensive social work histories be compiled on each study case. In addition to psychiatric and clinical psychological observations, a prescribed plan for the obtaining of data in the field of psychophysiology should be prepared. This data would include such factors as visual and auditory acuity, reaction time, steadiness and other sensory and motor phenomena.
7. That future psychiatric and psychological Arctic research teams be provided with a sufficiently large number of test subjects to render reliable statistical data obtained and that arrival at, departure from, and presence during the study period be in accordance with a prescribed research plan.
8. That consideration be given to future research and experimentation in the use of supportive group psychotherapy as an aid to Arctic adjustment.

  
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## Introductory remarks

Increased interest in the Arctic as a possible area for military training and operations has emphasized the necessity for investigating the psychological adjustments and reactions of military men who are assigned to duties under natural conditions of extreme cold accompanied by isolation. For several years the U. S. Army has conducted experiments on clothing, equipment and weapons under Arctic conditions. In addition, certain physiological observations have been made of military personnel under cold weather conditions by Medical Department research teams. In the summer of 1947, it was proposed by The Surgeon General, in conjunction with the Chief, Neuropsychiatry Consultants Division (Office of The Surgeon General) and Chairman, Medical Research and Development Board (Office of The Surgeon General), that winter operations at Fort Churchill, Canada, 1947-1948, include plans for preliminary psychiatric and psychological observations of military personnel assigned to this Arctic installation during this period. It was believed that information obtained from this preliminary or pilot study might serve as a basis for future experimentation and research of a psychological and psychiatric nature in the Arctic. With this in mind, the present study was organized.

No definite conclusions will be drawn from this limited and preliminary study. However, the objective and subjective observations which have been made are descriptive of a group of U. S. Army soldiers and officers on whom certain data were collected in a specific Arctic locale for a period of approximately five months. (3 December 1947 to 1 May 1948).



## Methodology

A detailed outline of the methodology planned for the study is given in Appendix A. On the experimental teams at Fort Churchill a place was made for one officer to represent the Neuropsychiatry Consultants Division, SGO, in the conduct of this study. A Medical Officer (Lieutenant Sweel) with psychiatric training was assigned to gather the data incorporated in this study. Certain modifications and changes in the original methodological approach (Appendix A) were necessary. The original plan was required to be made more flexible in line with the conditions prevailing at the locale of the study. It was not possible, for instance, to control the arrival and departures of the military personnel for the purpose of the study. Therefore, it was not possible to begin, as initially planned, with a group of 200 newly arrived men and follow them until their period of Arctic service terminated. At the time of arrival of the investigator, some of the men had been at Fort Churchill for less than a month and others had been there for more than a year. Also, throughout the winter, various groups of men arrived and left and others who were there in December 1947 left before May 1948 when the study was completed while others remained after the study was completed. For these reasons, and additionally to have a fairly sizeable sample, the selection of cases was changed to encompass all U. S. military personnel who were on duty at Fort Churchill when the study began on 3 December 1947. In addition, those who arrived prior to 15 January 1948 were included in the project. These men were followed until 1 May 1948 if they remained until that date. The total number of cases was 152.



For testing purposes, Phase I covered the period 3 December 1947 to 21 January 1948; Phase II, 21 January to 10 March 1948; Phase III, 10 March 1948 to 1 May 1948. The first phase and most of the second phase covered the midwinter period.

The investigator gathering the data lived with the men at the locale of the study. He was subjected to the same hardships and inconveniences as the men in the study groups, participated in the same recreational activities and lived and ate as they did. Subjective and objective data were gathered by the researcher in his role as participant observer. Because of the role which the investigator played in the project, it is believed that a high degree of rapport and confidence was established with the study subjects which increased the value of the observations made.

#### Distribution of cases studied

The criteria of selection of cases has been discussed in an earlier paragraph. The cases were divided into two major groups as follows:

1. Those who had volunteered for Arctic service (the Control group).
2. Those who were sent to the Arctic as non-volunteers (the Experimental group).

In analyzing the assembled data, the Control and Experimental groups further were divided into officer and enlisted groups and then subdivided into three subgroups according to the length of time they had been in the Arctic prior to the time they came under study. The distribution of the study cases is given in Table I, Appendix C.



### Locale of the study

This study was conducted at Fort Churchill, Manitoba, Canada, the most northerly of all permanent Canadian Army bases. It is located four miles south of the village of Churchill (population 100), Manitoba, on bluffs overlooking the Hudson Bay. Its exact geographic location is longitude  $94^{\circ} 07'$ , latitude  $58^{\circ} 47'$ , 530 miles south of the Arctic circle at the timberline.

The conditions of isolation and climate were average winter conditions at Fort Churchill during the period of the study except that the highest wind chill\* ever recorded on the North American continent occurred. The sub-freezing weather ( $0^{\circ}$  C to  $-45^{\circ}$  C) begins about 1 November and lasts until 1 June. Heavy winds average fifteen miles per hour with velocity frequently increasing to blizzard proportions of forty and fifty miles per hour.  $\pm$  At times there is a blowing snow with visibility being less than ten feet. The camp consists of approximately fifty semi-permanent frame buildings.

### Recreational facilities

Recreational facilities include a theater, which is used for nightly movies and for basketball games when movies are not showing. Although attempts were made to heat the theater, moviegoers usually

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\* Over 2300 kg. cal./sq. m./hr. Wind chill or dry shade atmospheric cooling, as defined by Paul A. Siple, Ph.D., Scientific Advisor, Research and Development Group, GS, USA, is a measure of the quantity of heat which the atmosphere is capable of absorbing from one square meter exposed surface within one hour. It is expressed in kilogram calories per square meter per hour per degree C. (0.369 BTU per square foot per hour per degree F.). "Ultra cold" is over 1800 kg. cal./sq. m./hr.



wore their parkas during the performance. The acoustics in the theater were poor. At times one had to wait outside the building in the severe cold to obtain a seat for the performance. Two recreation buildings were provided. One was large enough to house three bowling alleys, pool tables, a small library and a lounge. The other was small and contained a few card tables and a piano. An ice hockey rink was available outside the larger recreation building but was seldom used because of the severe cold and difficulty in snow removal. A Canadian post exchange with an adjacent beer tavern was available to U. S. military personnel. Other recreational facilities included iceskating, skiing, snowshoeing, basketball, photography and woodworking. There was one officers' club and a non-commissioned officers' club. Several stag parties were given for the enlisted men during the winter. Churchill, with its population of one hundred whites and Indians, has two taverns. Two dances in town were held during the winter which were attended by some of the soldiers.

Four enlisted men and three officers had their wives at Fort Churchill. Two of the officers and one of these enlisted men had one child with them in addition to their wives.

#### Conditions surrounding the study

The men stationed at Fort Churchill during the winter 1947-1948 were under stresses other than those due to cold and isolation. The number of men was inadequate for the work to be done. Some men were poorly qualified for their assigned tasks and certain equipment was lacking. Recreational facilities were poor and inadequate for the type of situation in which the men found themselves.



## DISCUSSION OF FINDINGS

### Personality and adjustment

From the tentative data and the observations by the investigator, the following general trends are indicated in the cases studied.

On the basis of the findings from the Guilford-Martin battery of tests (Personnel Inventory, Inventory of Factors GAMIN and Inventory of Factors STDCR) the personalities of all of the study cases, Control as well as Experimental, showed more indication of favorable adjustment toward the end of the study period (April 1948) as compared with the early part of the study period (December 1947). As the severity of the winter began to subside the following personality differences from the December period were noted. Objectivity (O), agreeableness (Ag) and cooperativeness (Co) increased.

As the severe winter began to set in, the test battery showed low (below average) scores on the traits "agreeableness" and "cooperativeness" for all the study groups. In April, although the degree of agreeableness and cooperativeness did not approach the favorable averages for the majority of the other personality features observed, there was, nevertheless, an increase approaching the average for the test based on general non-Arctic population standards.\*

Increased factor Ag in April 1948 was most marked in the group of enlisted volunteers who had been in the Arctic from between four and eight months before the study began.

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\* For all statistical findings, see Appendix B.



Analysis of personality factors relating to general activity (G), ascendance-submission (A), and rathymia (R), indicates a decrease in the degree of factors G and A and an increase in factor R from December 1947 to April 1948. Clinical observation by the psychiatrist-investigator, supported by test findings, seems to show that lowered general activity follows after several months of living in the Arctic. Initial contact by the soldier with Arctic conditions produces frustration, irritability and increased general activity which changes to an eventual passivity accompanied by lowered general activity and drive. The G factor for the total group of study cases was lower than for the general non-Arctic population in December 1947 and became still lower in April 1948. For the men who had been at Fort Churchill for a year before the study began their general activity and drive, as measured by the G factor, were markedly below the general non-Arctic population average and significantly below the G factor average of the men who had arrived at the time the study began. This seems to indicate that the longer a man remains under Arctic conditions the greater is the degree of decrease in his general activity and drive. This was observed clinically. Observation was made also that, associated with decreased activity, were lethargy, apathy and indifference. Increased factor R manifested itself clinically by decreased inhibitions and impulsiveness. The group in which increased factor R was most marked was among the enlisted volunteers who had been in the Arctic for from four to thirteen months before the study began. There appears to be



some indication that as the men increased their length of stay under Arctic conditions so there was an increase in the degree of euphoria, freedom from worry and impulsivity. The psychiatrist-investigator observed that the seeming outward good adjustment of the euphoric, carefree and indifferent subject was often the first sign of the beginnings of personality maladjustment in these individuals.

Factor M, masculinity of emotional and temperamental makeup, increased in April 1948 over December 1947 for the group of study cases. There may be some indication from the findings that the more rugged existence intensifies the masculine components of the personality makeup.

Examination of factors I (self-confidence) and N (freedom from nervousness and irritability) appears to show that the study subjects acquired a greater degree of self-confidence, self-reliance and freedom from tenseness and irritability in April 1948 over December 1947. Especially was this true of the group of enlisted volunteers who had lived under Arctic conditions for from four to eight months before the study began. This may indicate that gradual familiarity with Arctic conditions produces greater confidence which lessens tenseness and anxiety over the fears of an alien and comparatively difficult mode of life.

Sociability, as measured by factor S, increased in April 1948 over December 1947. Especially was this true of the group of enlisted volunteers who had arrived at Fort Churchill between four and eight months before the beginning of the study. An inclination to meditative



or reflective thinking, philosophizing and self-analysis (introversion) as opposed to extravertive orientation of thinking (extraversion) was evaluated by factor T. Factor T increased in April 1948 over December 1947 for the study cases which indicates greater extravertive orientation of thinking. There appears to be some indication that increased sociability, extravertive orientation of thinking and euphoric, carefree and impulsive tendencies become more apparent in the men after they have spent several months in the Arctic.

Freedom from depression and gloominess, factor D, and freedom from cycloid disposition or strong emotional fluctuations, factor C, increased for all the cases studied in April 1948 as compared with December 1947. This would appear to indicate that as time went by the men developed a higher degree of stability of mood and a more cheerful, optimistic outlook. This cheerfulness was accompanied and perhaps furthered by a feeling of apathy and indifference.

Comparing the total cases in the Control (volunteer) and Experimental (non-volunteer) groups, the general trends in the personality changes were the same for the period of the study except in factor R discussed below. Specifically, however, the Control group presented the following differences. Over the study period it became more objective than the Experimental group and remained at a higher level of objectivity. The Control group showed a larger proportionate increase in the "agreeableness" trait as well as in cooperativeness. The ascendancy factor, A, decreased more for the Experimental group



than for the Control. As compared with the Experimental group, the Control group had a greater tendency toward being calm, unruffled and relaxed, as indicated by factor N, at the beginning of the study, and remained so throughout the study period. As to the sociability factor, S, the Control group had a greater tendency to seek social contacts and to enjoy the company of others. In connection with factor S, factor T, thinking extraversion, was higher in the Control group in December 1947 and remained so in April 1948. Factors D and C, freedom from depression and cycloid tendencies, were higher for the Control group in December and increased more than the Experimental group over the test period.

Factor R, indicative of a happy-go-lucky and impulsive disposition, was higher in December 1947 and increased over the test period in the Control group, while in the Experimental group there was a slight decrease.

In general, the personality factors of the Control group in comparison with the Experimental group as indicated by the Guilford-Martin battery were more favorable in comparison with the test norms in December 1947 and became more so in April 1948.

The psychiatrist-investigator found in his clinical interviews and observations of the study cases that all men, Control and Experimental alike, experienced essentially the same emotional reactions and changes. However, the Control cases did not experience certain unfavorable characteristics, such as irritability and restlessness to as marked a degree as the Experimental group. In other traits,



such as decreased drive and activity, there were no noticeable differences observed clinically between the Control and Experimental cases. All personality changes gradually were in the direction of those which appeared to be required for satisfactory Arctic adjustment. Certain of those personality changes which seemed to be related to adjustment in the Arctic are decreased or low drive, increased sociability and cheerfulness, absence of depressive and cycloid tendencies, rigidity of personality and habit characteristics, ability to withstand monotony and frustrating experiences, ability to live and work well in small groups, adventurousness and ingenuity.

Examination of the results obtained from the Neuropsychiatric Screening Adjunct (NSA) which was administered during Phases I and III was not indicative of any significant findings relating to the personalities of the cases studied.

From clinical observations of the men in the study groups it appears that what is usually considered to be a stable, well-integrated personality is the most important requisite for longtime Arctic adjustment. It appears that the longer a man remains in the Arctic the greater is the degree of emotional stability required. It seems that the Arctic tends to magnify basic personality characteristics. The adjustive personality changes could, after a time, become liabilities and an apparently satisfactory adjustment may be deceiving. There is the impression that the Control group, as a whole, was making a moderately better adjustment in December 1947 than the Experimental group. In April 1948, this difference was more apparent. Of all the



study cases, those who seemed to make the best adjustment during the study period were men who had been in the Arctic for from four to eight months before the study began.

Further trends indicated in the adjustment of the groups studied are the following. Officers (both Control and Experimental) showed a progressive decline in their Arctic adjustment during the study period. This was indicated from the test data collected as well as from their own subjective statements during psychiatric interviews. All of the enlisted study cases showed a progressively better adjustment over the test period.

While there appeared to be some decline in the level of officer adjustment and a rise in the level of enlisted adjustment, the total officer adjustment was better than the enlisted. Observations made during psychiatric interviews led to the impression that all officers, Control and Experimental, adjusted equally well. The enlisted Control group, however, adjusted better than the enlisted Experimental group. In evaluations of their own Arctic adjustment, the Control groups, both officer and enlisted, felt that they were making a better adjustment than that indicated by the Experimental groups, both officer and enlisted. The group that made the poorest psychiatric adjustment was the enlisted Experimental group while the group that thought it made the poorest adjustment was the officer Experimental group.

The Guilford-Martin battery appeared to correlate closely with the actual adjustment of all the study cases. The total personality integration in order of decreasing favorability from the



Guilford-Martin tests, is as follows in the groups studied: Officer Control, officer Experimental, enlisted Control, enlisted Experimental.

In general, the impression was gained that all men, officer and enlisted, volunteer and non-volunteer, were tending toward an equal level of adjustment at the end of the study period.

Officers made a higher evaluation of the adjustment of enlisted men under their command than the same enlisted men evaluated each other's adjustment. The psychiatric evaluation corresponded more closely with the enlisted men's evaluation of each other's adjustment than the evaluation of the adjustment made by officers of these same men.

The psychiatric evaluation of the adjustment of the officers was higher than their evaluation of each other's adjustment as equals. On the other hand, the psychiatric evaluation of the adjustment of the enlisted cases was lower than the enlisted men rated each other. In this connection, the psychiatrist-investigator observed that the officers could have been better acquainted with the men in their command and the personal problems which they encountered. This information was gathered from psychiatric interviews with the enlisted study cases and from general observations made during the study period.

All study cases, both officer and enlisted, were making a better adjustment in April 1948 than they indicated they would make in December 1947 on the basis of their test performance and psychiatric interviews. It was observed that the midwinter period (January and February) was the time when all of the study cases were under the greatest strain and showed the highest degree of frustration,



irritability and restlessness. There may be some indication of this greater strain in the midwinter period from an examination of the liquor and beer consumption for the study period at Fort Churchill. While the population remained fairly constant except for January 1948 when there were approximately twenty-five visiting officers, the consumption of beer by officers and enlisted men varied as shown in Table II, Appendix C.

The amounts of beer consumed are for approximately 500 enlisted men and officers, both U. S. and Canadian. Figures for U. S. personnel alone are not available. It will be noted that the consumption of beer rose from 30,624 pints in November 1947 to 39,120 pints in February 1948, the height of the winter season, or an increase of 8,496 pints. These figures are for the camp only. No figures are available on the amount of beer drunk by military personnel in the town of Churchill. Enlisted personnel were permitted to drink beer only while officers were allowed both liquor and beer. Among approximately fifty U. S. and Canadian officers, liquor consumption rose from 243 twenty-six ounce bottles in November 1947 to 431 in February 1948. (Table II, Appendix C). Again, these figures represent amounts of liquor consumed in camp only. No figures are available for the amount of liquor consumed by officers in the town of Churchill or as a result of shipment from other sources.

#### Mental alertness and adjustment

During psychiatric interviews and from conversations with the investigator at other times, approximately one fourth of the study



subjects remarked that they were having some difficulty concentrating or that they were "being slowed up," (referring to their drive) or both. The findings from the results of the Otis Self-Administering Tests of Mental Ability tend to indicate a moderate decrease in degree of mental alertness among all of the study subjects as a group.

Form A of the Otis was administered in December 1947; Form B in February 1948 and Form C in April 1948. The average intelligence quotients of each of the study groups, both officer and enlisted, and of all of the study cases as one group were lower in February 1948 than they were in December 1947. The intelligence quotients of the enlisted men dropped more than those of the officers and the scores of the volunteers dropped more than those of the non-volunteers. The average intelligence quotient of all of the test subjects dropped 6.4 points in February; of all enlisted subjects, 6.8 points at this time; of all subjects, officer and enlisted, who had been at Fort Churchill for from four to eight months before the study began, there was a drop of 9.2 points in February 1948. The enlisted volunteers who had been at Fort Churchill for from four to eight months before December 1947 showed an intelligence quotient decrease of 8.4 points in comparing scores of February 1948 with December 1947. Since their December intelligence quotients and average intelligence quotients for the entire period were 6.1 and 6.2 points, respectively, lower than the group of enlisted men who arrived at the beginning of the study period, they fell into the dull average group in February 1948 with an intelligence quotient average of 87.2 points.

There may be a suggestion from these data that long periods of exposure to Arctic conditions produce decreased drive and motivation, increased apathy and attendant decreased mental alertness. However, this decrease in mental alertness may aid in acclimatization since the data suggest that the group which made the best overall personality adjustment during the period of study were those men, both officer and enlisted, who had been at Fort Churchill for from four to eight months before December 1947. This same group showed greatest decrease in mental alertness during the midwinter period.

The average intelligence quotients of each of the study groups, as well as the average intelligence quotient of the total group of study cases, rose in April 1948 from the February 1948 scores but usually did not rise to the December 1947 levels. The average intelligence quotient of all the test subjects dropped 6.4 points from December 1947 to February 1948. In April 1948 the average intelligence quotient for all the study cases remained 1.2 points below the December 1947 level.

The average intelligence quotients of the enlisted study subjects showed a greater fluctuation, from phase to phase, than did those of the officers.

From the results obtained from alternate forms of the same intelligence scale taken by the study subjects, there may be some indication of the following trends. Mental alertness among the men showed a moderate decrease after several weeks' contact with Arctic conditions; this decrease is most marked during the midwinter period



and there is a tendency for the mental alertness level, as indicated by intelligence test performance, to approach the return to the pre-midwinter mental alertness level as the severity of the midwinter period subsides. There is a suggestion from the data also that the enlisted volunteers suffer the greatest decrease in mental alertness during the midwinter period. While no specific reason can be suggested for the greater decrease in mental alertness among the enlisted volunteers as against the enlisted non-volunteers, it may be of interest to suggest that the study cases in the Control group (volunteers) may have entered more readily into the spirit of the assignment and may have worked harder at difficult tasks involving longer periods of exposure to cold and wind.

When the officers' evaluation of the lower ranking officers and of the enlisted men's performance and adjustment was compared with the Otis intelligence quotients of all the study cases it was found that essentially the same number, 74 per cent, of men with intelligence quotients over 100 were rated as average or above in performance and adjustment as compared to those so rated who had intelligence quotients of 100 or less (70 per cent). Also, essentially the same number (26 per cent) of men with intelligence quotients over 100 were rated as below average in performance and adjustment as compared to those so rated who had intelligence quotients of 100 or less (30 per cent). This would seem to indicate that, according to the officers, intelligence did not influence performance and adjustment. However, when the psychiatrist's evaluation of the men's performance and adjustment was compared with their

intelligence quotients, it was found that 76 per cent with intelligence quotients over 100 were rated as average or above in performance and adjustment as compared with 52 per cent so rated with intelligence quotients of 100 or less. Also 24 per cent of the men with intelligence quotients over 100 were rated as below average in performance and adjustment as compared with 48 per cent so rated with intelligence quotients of 100 or less. Therefore, according to the psychiatric evaluation, more men with intelligence quotients over 100 adjusted and performed well than did those with intelligence quotients of 100 or below. However, the test subjects who had been at Fort Churchill for from four to eight months before December 1947 and had an average intelligence quotient in December of 96.5 and in February 1948 of 87.3 and April 1948 of 94.8 adjusted well during the test period. Although decreased alertness seems to accompany acclimatization it would be, perhaps, unwise to say that a person with dull average intelligence to begin with would be more likely to adjust to Arctic conditions. Although no definite conclusions can be made at the present time concerning intelligence and adjustment in the Arctic, it would seem that a person going into the Arctic should have average or above average intelligence so that he would have "more to spare" in the event that a decrease in mental alertness takes place. It appears that below average intelligence necessarily does not prevent a man from adjusting successfully to an Arctic assignment provided that his personality is stable and well-integrated and his tasks are within the capabilities of his intelligence.



While it cannot be concluded definitely from this study that long periods of exposure to conditions of severe cold and wind do reduce mental alertness, the trends indicated in this study suggest this as a problem to investigate more conclusively in future experimentation and research. Decrease in mental alertness, which accompanies decreased drive, apathy and indifference may play a large part in the psychological component of acclimatization to Arctic conditions. There may be a suggestion from the data and from observations made at the locale of the study that prolonged living under Arctic conditions modifies and changes the personality so that one may adjust more effectively.

The men's evaluation of their own emotional and situational adjustment

Each soldier in the test groups was asked during April 1948 to evaluate (Opinion Poll - Form E, Table V, Appendix C) his own adjustment to cold and isolation and also to evaluate changes which he believed had occurred in his personality and attitudes. The questionnaires were designed to indicate changes since they came into the unit in specific traits such as ambitiousness, worry, anger, cheerfulness, cooperation and tolerance of others. The answers were given in terms of "More," "Less," or "No Change."

On the average, approximately 56 per cent of the answers to all the questions for both Control (volunteers) and Experimental (non-volunteers) indicated "No Change" or that their attitudes and personalities were not affected by their presence at Fort Churchill. However, in answer to the individual questions included in the poll,

those expressing "No Change" varied within a range of from 36 per cent to 75 per cent among the various questions.

Those answers to the questions which reported changes were interpreted in terms of "favorability" or "unfavorability." Of the total number of answers which indicated a change either in attitudes or personality caused by their stay at Fort Churchill, 56 per cent of the answers showed favorable changes compared with 44 per cent which showed unfavorable changes. The answers further were analyzed by separating those who volunteered and those who did not volunteer for the Churchill assignment. Of the total answers for each group, among the volunteers and non-volunteers, 61 per cent and 45 per cent, respectively, reported favorable changes in their emotional adjustment while 39 per cent and 55 per cent of the answers for volunteers and non-volunteers, respectively, reported unfavorable changes.

There were two questions to which there were more answers of "More" or "Less" than of "No Change." To the questions (15 and 29) concerning acceptance of responsibility and of acquiring wider interests, more men felt that they could accept more responsibility and had developed wider interests than those who believed that they had not changed or who had experienced unfavorable emotional changes.

Considering the total group of study cases, more men answered the remaining questions either "More" or "Less," although not so many as answered "No Change." More thought that they had become less ambitious than thought they had become more ambitious; more thought that they had become moodier, more thwarted, less cheerful, more hardboiled, more easily angered, more easily disgusted, less



happy, more restless, more easily depressed, more easily annoyed, and more critical of themselves. More thought that they had become less regretful, had become more self-confident, were more optimistic, more easily satisfied, more sociable, more independent, more tolerant, less critical of others, less worried, had less resentment for authority, concentrated better, were more cooperative, patient and perseverant.

Considering the Control and Experimental groups, the Control group had more men that answered favorably the questions on acceptance of responsibility and development of wider interests (15 and 29) than answered unfavorably or "No Change." Similarly in the Experimental group, more men answered as "More" the questions (9 and 13) on becoming disgusted and restless than answered "Less" or "No Change." Both the Experimental and Control groups thought that on the following personality traits they had become "More." They were moodier, angered more easily, more self-confident, disgusted, restless, sociable, more able to accept responsibility, independent, depressed, tolerant, more easily annoyed, cooperative, self-critical, tense, perseverant, and had developed wider interests. Both the Control and Experimental groups thought they had become less cheerful, regretful and worrisome. The Control group varied from the Experimental group in that it thought it had become more ambitious, less thwarted, less hardboiled, more optimistic, more satisfied, happier, less critical, less resentful of authority, concentrated better and more patient.

Study of the Opinion Poll (Form E) shows that all test subjects experienced essentially the same emotional reactions but that

the Control group felt it had adjusted better. These subjective remarks by the men were observed clinically and indicated on the tests conducted during the winter. However, all the reactions described by the men were not observed in April 1948 when Form E was completed but may have occurred at different times during their assignment at Fort Churchill. For example, all the test subjects believed, when they were polled in April 1948, that they had become more restless. From observations by the psychiatrist-investigator and the test results, all of the subjects were more restless during the midwinter which did not increase but decreased as April approached. Therefore, the trait "restlessness" was not observed to have carried over to the conclusion of the study period. The Control group believed that it was concentrating better in April 1948 as it expressed itself on Form E. However, test results show that while there was, for this group, an increase in concentration ability from February 1948 to April 1948, there was not a gradual increase in concentration ability from the beginning of the study period to the end. As has been mentioned previously, the Control group showed an intelligence quotient drop from December 1947 to February 1948 and an increase in April over February but not quite a return to the December 1947 intelligence quotient level.

The men in both the Control and Experimental groups completed the Attitude Questionnaire (Form F, Table IX, Appendix C), to express their likes and dislikes at Fort Churchill, and also to report the influences of the environment on their physical and mental well-being.



For the purpose of analysis, the questions were grouped into the following categories: (a) Physical and mental well-being; (b) Weather; (c) Food and water; (d) Housing; (e) Recreation; and (f) Work. Each answer, stated as "Yes" or "No" within the above groups, was then interpreted as being either "Favorable" or "Unfavorable."

Of the total number of questions answered, 72 per cent of the responses were favorable compared with 28 per cent unfavorable. However, when the Control and Experimental groups are compared, 74 per cent and 69 per cent of the total Control and Experimental groups answers, respectively, are favorable as compared with unfavorable responses of 26 per cent and 31 per cent, respectively, for each of the groups.

The majority of the responses are favorable in the categories related to physical and mental health, weather, food and water, and work. However, relative to housing and recreation the number of favorable and unfavorable answers are almost equally divided. It should be observed also that in all the subject categories discussed, with the exception of housing, the percentages of favorable replies compared with unfavorable replies are larger among the Control than the Experimental groups.

The Attitude Questionnaire (Form F) showed, as did the Opinion Poll (Form E) that the men were adjusting favorably in April 1948. This again especially was true for the Control group. On the questions concerning changes in reasoning power and memory,

25 per cent of the men felt that there were changes. Thirty-five per cent of the men noticed changes in their drive or enthusiasm. There was no marked difference between the Control and Experimental groups in these answers.

#### General observations

As a result of his close participation in the life and activities at Fort Churchill during the winter of 1947-1948, the psychiatrist-investigator has made certain general observations which he believes relate importantly to the psychiatric and psychological adjustment of military personnel under Arctic conditions.

Since the very nature of the Arctic, because of the severity of its weather and inherent isolation, presents numerous stresses and frustrations, all other conditions which might produce stress and frustration should be eliminated insofar as possible. Possible sources of added mental discomfort for military personnel in the Arctic lie in the following areas: Inadequate numbers of personnel for the job to be done; poorly qualified personnel for jobs; job malassignments; poor leadership among commissioned and non-commissioned officers; poor administration and lack of coordination among military units; inadequate recreational facilities; inadequate orientation and education to the mission of the unit. While the above deficiencies are undesirable in any military organization, particularly they are provocative of lowering of mental health if they exist in the Arctic.

When a man volunteers for Arctic assignment, the reason for his volunteering should be analyzed carefully. The volunteer



who does best in an Arctic assignment is the one who is interested in his own military job assignment under Arctic conditions. Some of the reasons, which are considered unfavorable, given by soldiers at Fort Churchill for volunteering for the assignment were the following:

- a. To get away from previous post.
- b. To get away from marital and domestic difficulties.
- c. To get foreign duty and pay but still be close enough to come home on furlough.
- d. To get any foreign service without specific preference for geographical assignment.
- e. To satisfy curiosity about the Arctic.
- f. To achieve more rapid promotions.

Some of the reasons for volunteering, which appeared to be related to favorable adjustment in the Arctic, are the following:

- a. To perform his military occupational specialty under Arctic conditions and to add to his knowledge and experience in his job.
- b. To accompany an officer, whom the soldier admired, at the officer's request.
- c. To enjoy the type of life afforded by the Arctic because he is interested in this type of life.

It was observed that what seemingly may be a satisfactory adjustment to Arctic living after a protracted period actually may be a deterioration of certain of the personality factors associated with normal adjustment under non-Arctic conditions. For example, after prolonged residence in the Arctic the seemingly adjusted, care-free individual often, through psychiatric examination, discloses

an individual with indifferent, euphoric, inappropriate affect. For this reason, in order to keep a soldier at the peak of Arctic acclimatization and to forestall personality deterioration, he should be required to leave the Arctic periodically, preferably every six months, for a minimum of two weeks.



SURGEON GENERAL'S OFFICE  
NEUROPSYCHIATRY CONSULTANTS DIVISION

13 October 1947

INSTRUCTIONS FOR MAKING  
PSYCHIATRIC AND PSYCHOLOGICAL OBSERVATIONS  
OF MILITARY PERSONNEL UNDER ARCTIC CONDITIONS

1947 - '48

1. Purposes of observations

- a. To gather preliminary information which will aid in determining the personality factors correlative with successful and unsuccessful adjustment to conditions of extreme cold accompanied by isolation so that techniques may be devised to select for this service the type of men who has the best chance of succeeding.
- b. To observe and evaluate reactions and changes in the personality and mental processes of military personnel under natural conditions of extreme cold accompanied by isolation.
- c. To gather information on problems of morale which present themselves among military personnel under Arctic conditions.

2. Cases to be studied

The study groups should be comprised of two groups as equal in number as possible designated as follows:

- a. Control group - those men who have volunteered for assignment to the cold weather unit.
- b. Experimental group - those men who are non-volunteers, i.e., house-keeping personnel and others.

3. Plan of study - The study will be divided into three parts known as Phase I, Phase II and Phase III.

a. Phase I

This phase is that period prior to departure from the United States or a period occurring as soon after arrival as possible in the Arctic area.

The techniques to be administered to all subjects under study during the period are the following:

- (1) Form D with brief psychiatric interview
- (2) Form A (Autobiographical Blank)
- (3) Form H (Guilford-Martin Battery)
- (4) Form G (Otis Self-Administering Test of Mental Ability, A)
- (5) Form I (NSA)

## b. Phase II

This phase is a period sometime near the middle of the period of Arctic service.

The techniques to be administered to all subjects during this phase are the following:

- (1) Form G (Otis Self-Administering Test of Mental Ability, B)
- (2) Form D with psychiatric interview (a thorough psychiatric interview will be held with those who in the opinion of the psychiatrist show evidence of maladjustment.)

## c. Phase III

This phase is a period as close as possible to the conclusion of Arctic service after the departure date has been announced. The techniques to be administered during the phase are the following:

- (1) Form H (Guilford-Martin Battery)
- (2) Form G (Otis Self-Administering Test of Mental Ability, C)
- (3) Form I (NSA)
- (4) Form B (Rating of EM by officers)
- (5) Form C (Parts I and II), (Rating Form for EM by EM and Officers by Officers)
- (6) Form E (Opinion Poll)
- (7) Form F (Attitude Questionnaire)
- (8) Form D accompanied by final psychiatric interview.

## 4. Techniques to be used

### a. General

The psychiatric interview together with the Check List for NP Interview (Form D) will serve as the basic clinical tool. Together with this certain standardized tests and non-standardized rating forms will be used. These are referred to below. The Forms are to be administered to all subjects during the Phases as indicated. With the exception of the psychiatric interview, which is held with each man individually, the remaining forms may be administered individually or in groups. Group administration is preferable in order to save time. Instructions for administration, scoring and interpretation of the Guilford-Martin Battery (Form H), Otis Test of Mental Ability, and Neuropsychiatric Screening Adjunct (NSA) are contained in the Manual accompanying each test. Additional notations for interpretation of the Guilford-Martin Battery are appended to these instructions as Appendix A.

### b. Specific techniques

- (1) Form A - Autobiographical blank

Purpose: To gather information on the cultural background and stability of the subject from autobiographical information and self-evaluation.



This form will be administered to all subjects during Phase I. There is no time limit. Subjects will be permitted to work until all of the answers are complete. Assistance in the completion of the form will be given freely. The form is evaluated subjectively and a rating (From -4 to +4) assigned based on the degree of strength or weakness of cultural background and stability.

(2) Form B - Rating of Enlisted Men by Officers.

Purpose: To secure performance evaluations from officers on enlisted men who have worked under their supervision during the period of study.

This form will be completed on all study subjects during Phase III of the research project. The officer under whom the study subject worked in the unit or the one who is best acquainted with the subject's personality and performance will complete this evaluation. The form will then be evaluated and a rating assigned based on the various degrees of efficiency of performance and adjustment.

(3) Form C - Rating of Enlisted Men by Enlisted Men and Officers by Officers. Part I - Rating form for the evaluation of officers by officers and enlisted men by enlisted men. Part II - Additional information for the rating of officers by other officers.

Purpose: To gather information on performance and adjustment of officers and enlisted men where the evaluation is made by military equals.

Part I of this form will be administered during Phase III of the project to all study subjects, both officer and enlisted. Part II of this form will be used additionally in the cases of officers. If no officers are included in the study groups, then ratings will be obtained on those officers who rate the Enlisted subjects (Form B). Where Form C is used for rating officers, Parts I and II should be stapled together and evaluated as one form. Form C (Part I or Parts I and II combined) will be rated on the basis of varying degrees of efficiency in performance and adjustment.

(4) Form D - Check List for Neuropsychiatric Interview

Purpose: Guide sheet for the conduct of brief psychiatric interviews to aid the psychiatrist in predicting and observing adjustment during the period of study.

The neuropsychiatric interview will be conducted during Phases I, II and III of the project with all study subjects. The interview will be clinical in nature and Form D will be used as a guide sheet. Information not covered in Form D will be elicited and recorded in all cases where this is indicated. Based on the interview, an evaluation of degree of adjustment will be made and the rating entered on Form J. The interview will be summarized after each interview on Form D under the heading, "Summary."

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\*See "Notes for Rating" on Form J for further instructions on this and other forms used in this study.

(5) Form E - Opinion Poll\*

Purpose: To obtain information on personality changes which the subjects have undergone as they themselves evaluate these changes.

This form will be administered to all study subjects during Phase III of the study. There is no time limit. The men will work until finished. As much assistance as is necessary will be given the study subjects in completing the form. The answers will be evaluated subjectively on the basis of degree of change, as the man himself evaluates his own personality changes. Rating will be entered on Form J.

(6) Form F - Attitude Questionnaire\*

Purpose: To obtain information from the subjects on their evaluation of their situational adjustment.

This form will be administered to all study subjects during Phase III of the study. There is no time limit. The men will work until finished with as much assistance given as the men require. The answers will be evaluated subjectively on the basis of the subject's own evaluation of his situational adjustment. Rating will be made on the basis of degree of adjustment stability and entered on Form J.

(7) Form G - Otis Test of Mental Ability

Purpose: To make an objective assessment of the intelligence, mental alertness, and changes, if any, of these processes during the expedition.

The Otis Test of Mental Ability will be administered three times: once during Phase I, once during Phase II and once during Phase III. Three forms of the Otis are supplied (A, B and C). Form "A" of the Otis will be used during Phase I; form "B" of the Otis during Phase II; form "C" of the Otis during Phase III. Tests will be administered and scored in accordance with the Manual of instructions furnished with the test. Based on the test performance, a separate rating will be entered on Form J.

(8) Form H - Guilford-Martin Battery

- a. The Guilford-Martin Personnel Inventory I
- b. Inventory of Factors GAMIN (abridged edition)
- c. An Inventory of Factors STDCR.

Purpose: To obtain an evaluation of each subject in relation to certain components of the personality and to determine whether any aspects of the personality undergo change during the period of study.

The Guilford-Martin Battery consists of three tests, each of which explores a different set of personality traits (See Appendix A). The three tests in the battery will be administered to each study subject during Phase I and the same tests repeated with the same subjects during Phase III. Tests will be administered, scored, and interpreted in accordance with the Manual of instructions accompanying the tests. Based on the standard scores, a separate score will be arrived at and entered on Form J. To arrive at the score to be entered on Form J for this battery, the ratings on each of the three tests in the battery will be considered and, based on this, a composite rating made.

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\*-These forms were prepared by Captain Moody C. Bettis, MC, and Mr. Daniel Malamud.



(9) Form I - Neuropsychiatric Screening Adjunct (NSA)

Purpose: To obtain information on the psychosomatic complaints made by the subjects at the beginning of the expedition and at the end in order to observe changes, if any.

Form I, NSA, will be administered during Phase I to all study subjects and repeated to the same subjects during Phase III. The test will be administered and scored in accordance with the manual of instructions provided with this form. Based on the standard score, a separate rating will be made and entered on Form J.

(10) Form J - Summarized Rating Scale

Purpose: To provide a cumulative summary form for all the information obtained during the course of the study; to objectify recording of results; and to arrive at an objective rating of performance together with a subjective evaluation of the reasons for the performance.

This form will be maintained on each of the study subjects. It will be initiated at the time of the administration of the Autobiographical Blank, Form A, in Phase I and closed out with a "final total average" rating at the conclusion of Phase III.

In addition to the "final total average" rating (See "Notes for Rating" on Form J), a subjective evaluation summary will be completed on the reverse side of the form. The rater will sum up, briefly, the salient features in the total performance of each of the study subjects which have formed the basis for the total average performance rating.

Read the "Notes for Rating" on Form J which outline the meaning of the ratings which run from "-4" through "4" and "0" is the average.

The "X" marks on Form J indicate when a form will not be administered. Forms A, B, C, E and F will be administered only once, hence the average rating for these forms will be the same as the rating for the one administration.

5. Additional General Instructions and Remarks

As stated in the purposes of this study, the research is to gather preliminary data from which more accurate measures and techniques may be devised. Therefore, much of the rating to be done will be subjective and will be based on the opinion of the psychiatrist in charge of the project. Any observations which are additional to those gathered by the techniques which have been prescribed for use will be helpful and should be recorded.

At the beginning of Phase I an individual folder should be initiated for each member of the study group. In this folder will be placed all of the completed forms together with the scoring and interpretation. Also, Form J will be kept in this folder and an appropriate rating entered after the completion of each test or interview.

With the exception of the psychiatric interview, all of the forms may be administered under group conditions and should be in order to save time.

Before the administration of each form the study subject should be impressed with the idea that the material to be obtained is confidential; is for purely scientific research in the Medical Department; and will have no bearing whatsoever on the individual's military career now or at any time in the future. The remarks to be made before the administration of each form should be in substance as follows: "The Army Medical Department is studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency, and health of military personnel. We are as interested in adjusting men to this climate as we are in adjusting equipment. You can be assured that the information obtained will be regarded as confidential and is for purely scientific research in the Medical Department. It will have no bearing whatsoever on the individual's military career now or in the future. With this in mind, it is evident that only honest and complete answers will be of any value."

Since the material to be gathered is regarded as confidential, care must be exercised to insure against the data being seen by unauthorized persons. When not in actual use by the psychiatrist the material should be kept under lock. This is true for the completed tests as well as for the unused material.

At the conclusion of the study, the data gathered on each of the subjects should be shipped in the individual folders to:

The Surgeon General  
Attention: Chief, Neuropsychiatry Consultants  
Division, The Pentagon  
Washington 25, D. C.

Together with the individual data submitted, the psychiatrist should prepare a report summing up the findings of the study, including observations and suggestions which will be helpful in planning future experimentation and research.

It is desirable that the scoring of all tests be completed locally as soon as possible after the administration of the tests. However, if conditions do not permit the scoring of certain tests during the period of the cold weather exercise, they may be held until opportunity permits their scoring and evaluation.



## Guilford-Martin Battery

### Interpretation of the Scores on the 13 Temperament Traits

#### a. From Guilford's Inventory of Factors S T D C R

- S - Social Introversion-Extraversion. - A high C-score indicates sociability, a tendency to seek social contacts and to enjoy the company of others. A low C-score indicates shyness, a tendency to withdraw from social situations and to be seclusive. A high C-score is more desirable for mental health than is a low C-score. A very low C-score on S indicates a need for guidance directed toward increased social participation.
- T - Thinking Introversion-Extraversion. - A high C score indicates a lack of introspectiveness and an extravertive orientation of the thinking processes. A low C-score indicates an inclination to meditative thinking, philosophizing, analyzing one's self and others, and an introspective disposition. The middle range of C-score is more desirable for mental health than either extreme on trait T. Each extreme, however, may have its value for certain types of occupation.
- D - Depression. - A high C-score indicates freedom from depression, a cheerful, optimistic disposition. A low C-score indicates a chronically depressed mood including feelings of unworthiness and guilt. The higher the C-score on trait D, the better is likely to be the emotional adjustment of the individual.
- C - Cycloid Disposition. - A high C-score indicates stable emotional reactions and moods, and freedom from cycloid tendencies. A low C-score means the presence of cycloid tendencies as shown in strong emotional reactions, fluctuations in mood, and a disposition toward flightiness and instability. The higher the C-score on trait C, the better will be the emotional adjustment of the individual, except that scores that are too high may indicate a colorless, inert individual.
- R - Rhythymia. - A high C-score indicates a happy-go-lucky or carefree disposition, liveliness, and impulsiveness. A low C-score indicates an inhibited disposition and an overcontrol of the impulses. Both extreme of C-scores may represent psychological maladjustments and a C-score in the middle range is desirable for mental health.

#### b. From the Guilford-Martin Inventory of Factors G A M I N

- G - General Activity. - A high C-score indicates a tendency to engage in vigorous overt action. A low C-score indicates a tendency to inertness and a disinclination for motor activity. An extremely high C-score on trait G may represent manic tendency while an extremely low C-score may be an indication of a hypothyroid condition or other

causes of inactivity. Thus, for good mental health a C-score on G in the middle range is usually most desirable.

- A - Ascendancy-Submission. - A high C-score indicates social leadership and a low C-score social passiveness. The C-score of a person on trait A must be interpreted in the light of his other characteristics of temperament as shown on the profile chart, and no general rule can be set forth as to what C-scores on trait A are most desirable for mental health. However, there is emphasis in our culture on the general desirability of a high C-score on Trait A. Females tend to have distinctly lower C-scores on A than do males.
- M - Masculinity-Femininity. - A high C-score on this trait indicates masculinity of emotional and temperamental make-up and a low C-score indicates femininity. The C-scores of the majority of males are above 5 and the majority of females have C-scores below 5. Males whose C-scores are very low are sometimes found either to lack their full quota of male hormones or to have an oversupply of female hormones.
- I - Inferiority Feelings. - A high C-score indicates self-confidence and a lack of inferiority feelings. A low C-score indicates a lack of confidence, under-evaluation of one's self, and feelings of inadequacy and inferiority. The higher the C-score on trait I, the better for mental health, with the exception of extremely high cases in which clinical investigation may reveal a superiority compensation for hidden inferiority feelings. Many psychoneurotics have very low C-scores on trait I.
- N - Nervousness. - A high C-score indicates a tendency to be calm, unruffled, and relaxed; a low C-score indicates jumpiness, jitteriness and a tendency to be easily distracted, irritated, and annoyed. The higher the C-score on trait N, the better for mental health unless there are clinical indications that an overly sluggish and torpid condition is the basis for an extremely high C-score. Extremely low C-scores in some cases may involve a lack of calcium in the blood. In many cases, a mental conflict may be the basis for the emotional tension expressed in jitteriness and irritability.
- c. From the Guilford-Martin Personnel Inventory I
- O - Objectivity. - A high C-score on this trait indicates a tendency to view one's self and surroundings objectively and dispassionately. A low C-score indicates a tendency to take everything personally and subjectively and to be hypersensitive. The higher the C-score on trait O, the better for mental health. Pathological cases may develop paranoid ideas of reference and delusions of persecution.
- Co- Cooperativeness. - A high C-score indicates a willingness to accept things and people as they are and a generally tolerant attitude. A low C-score indicates an overcriticalness of people and things and an intolerant attitude. The higher the C-score on trait Co, the better for mental health unless the C-score on C or clinical signs indicate a torpid and sluggish condition to be the basis of the lack of criticalness. Overcriticalness is often a compensation for



hidden feelings of inadequacy. Pathological cases may exhibit a paranoid projection of their conflicts and impulses.

**Ag- Agreeableness.** - A high C-score indicates an agreeable lack of quarrelsomeness and a lack of domineering qualities. A low C-score indicates a belligerent, domineering attitude and an overreadiness to fight over trifles. Very low scores on trait Ag indicate an extreme craving for superiority as an end in itself developed as a compensation for some chronic frustration and in pathological cases may lead to paranoid delusions of grandeur. It is possible that a sadistic component may occur in some of the pathological cases. Further investigation should be made of the psychological structure of extremely low C-scores on traits O, Co, and Ag, as the paranoid area of temperament which they cover is predisposing toward trouble-making behavior in industry, marriage, and other social situations.





FORM J  
(Summarized Rating Scale)

(Date of Arrival)

(Date of Departure)

Name Grade ASN

Test or Technique	Form	Variable	Phase I										Phase II										Phase III										Average
			-	3	2	1	0	1	2	3	4	+	-	3	2	1	0	1	2	3	4	+	-	3	2	1	0	1	2	3	4	+	
Autobiographical Blank	A	Cultural background and stability																															
Rating of EM by Officers	B	Performance and adjustment	X	X	X	X	X	X	X	X	X																						
Rating of EM by EM and Off. by Off.	C	Performance and adjustment	X	X	X	X	X	X	X	X	X																						
Check list for NP Interview	D	Evaluation of Successful adjustment																															
Opinion Poll	E	Self Evaluation of Change	X	X	X	X	X	X	X	X	X																						
Attitude Questionnaire	F	Situational adjustment	X	X	X	X	X	X	X	X	X																						
Otis Test Mental Ability (A, B, C)	G	Intelligence and mental alertness																															
Guilford-Martin Battery	H	Personality evaluation																															
NSA	I	Psychosomatic complaints																															

Notes for Rating:

0 means average

+1 means just above average

+2 means better than two out of three subjects

+3 means better than four out of five subjects

+4 means better than nine out of ten subjects

-1 means just below average

-2 means falls within the lower third

-3 means falls within the lower fifth

-4 means falls within the lower tenth

(Cont'd over)

M.C.

Signature of Psychiatrist

(Grade)

(Over)

Final Total Average

Subjective Evaluation Summary:

Briefly sum up the salient features in the total performance of this man which have formed the basis for his total average performance rating.

Notes for rating (Cont'd)

Place a check mark in the appropriate space to indicate the rating for a particular test or technique. At the conclusion of the three phases of examinations place the average score under column Average. The final total average is the sum of the averages for Forms A thru I divided by 9.





Organizations: Of which you are, or once were a member - and position held.

1. \_\_\_\_\_ Position \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

My sleep may be described as:

\_\_\_\_\_ Very deep \_\_\_\_\_ light  
\_\_\_\_\_ deep \_\_\_\_\_ very light

My eating habits:

\_\_\_\_\_ I can eat almost anything \_\_\_\_\_ I have to be careful about a number of foods  
\_\_\_\_\_ 1 or 2 things do not agree \_\_\_\_\_ There are many things I cannot eat

My emotional state may be described as:

\_\_\_\_\_ steady \_\_\_\_\_ ups and downs  
\_\_\_\_\_ somewhat moody \_\_\_\_\_ usually up or usually down

I get so discouraged that it interferes with my work:

\_\_\_\_\_ never \_\_\_\_\_ once in one or several months  
\_\_\_\_\_ once or twice a year \_\_\_\_\_ once in one or several weeks

In relation to people I meet for the first time, I am:

\_\_\_\_\_ friendly \_\_\_\_\_ rather withdrawn  
\_\_\_\_\_ shy until I get to know them \_\_\_\_\_ on guard

Of the people I do know, I have:

\_\_\_\_\_ many friends, intimate and otherwise \_\_\_\_\_ some or many friends, few intimates  
\_\_\_\_\_ many friends--a few intimates \_\_\_\_\_ one or two intimates, no others

I have gone to a doctor for "nervousness", nervous symptoms, personality difficulty or personal problem:

\_\_\_\_\_ never \_\_\_\_\_ three times  
\_\_\_\_\_ once or twice \_\_\_\_\_ more than three times

In regard to social activity and solitude:

\_\_\_\_\_ I can't stand being alone \_\_\_\_\_ I often prefer to be alone  
\_\_\_\_\_ I prefer social activity but like to be alone sometimes \_\_\_\_\_ It's about fifty-fifty

I find that expressing my feelings is:

\_\_\_\_\_ almost always difficult \_\_\_\_\_ sometimes difficult  
\_\_\_\_\_ usually difficult \_\_\_\_\_ rarely difficult  
\_\_\_\_\_ \_\_\_\_\_ never difficult



The Army Medical Department is studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency, and health of military personnel. We are as interested in adjusting men to this climate as we are in adjusting equipment. On this form you are asked to evaluate \_\_\_\_\_. You can be assured that the information obtained will be regarded as confidential and is for purely scientific research in the Medical Department. It will have no bearing whatsoever on the individual's military career, now or in the future. With this in mind, it is evident that only honest and complete answers will be of any value.

1. Place a check in the proper column which best describes this man.

	<u>Above Average</u>	<u>Average</u>	<u>Below Average</u>
a. His willingness	_____	_____	_____
b. His interest	_____	_____	_____
c. His cooperation	_____	_____	_____
d. His adaptability	_____	_____	_____
e. His leadership qualities	_____	_____	_____
f. His emotional stability	_____	_____	_____
g. His adjustment to other soldiers	_____	_____	_____
h. His performance in temperate climate	_____	_____	_____
i. His performance in cold climate	_____	_____	_____

2. If there has been any change in his efficiency since coming to Ft. Churchill state briefly what you believe are the reasons \_\_\_\_\_  
\_\_\_\_\_

3. Do you feel that there has been a definite change in his personality since coming to Ft. Churchill? Yes No  
If yes, describe in your own words \_\_\_\_\_  
\_\_\_\_\_

4. Is this man doing work in accordance with his Military Occupational Specialty? Yes No

5. Approximately how long have you known this man? \_\_\_\_\_

6. He has been a disciplinary problem: (circle appropriate word)  
Frequently      Occasionally      Seldom or never.

7. If the choice were yours, would you like to have this man in your outfit?  
Particularly desire him \_\_\_\_\_ Would not want him \_\_\_\_\_  
Would like to have him \_\_\_\_\_

Explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Over)

8. In general, as a soldier is he:      Above average      Average      Poor

8a. Explain the reasons for your rating in 8, above.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Grade)



The Army Medical Department is studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency, and health of military personnel. We are as interested in adjusting men to this climate as we are in adjusting equipment. On this form you are asked to evaluate \_\_\_\_\_ . You can be assured that the information obtained will be regarded as confidential and is for pure scientific research in the Medical Department. It will have no bearing whatsoever on the individual's military career, now or in the future. With this in mind, it is evident that only honest and complete answers will be of any value.

Approximately How Long Have You Known This Man? \_\_\_\_\_

(Months)

Place a check in the appropriate column which best describes this man.

	Better than Average	Average	Below Average
1. How does he get along with others?	_____	_____	_____
2. How does he do his job?	_____	_____	_____
3. How does he withstand the isolation?	_____	_____	_____
4. How does he withstand the cold?	_____	_____	_____
5. Is he able to take responsibility?	_____	_____	_____
6. Does he make friends?	_____	_____	_____
7. Does he have common sense?	_____	_____	_____
8. Is his intelligence	_____	_____	_____
	Often	Occasionally	Seldom or never
9. Does he seem tired?	_____	_____	_____
10. Does he lose his temper?	_____	_____	_____
11. Does he complain of being sick?	_____	_____	_____
12. Is he cheerful?	_____	_____	_____
13. Does he take foolhardy chances?	_____	_____	_____
14. Does he get into trouble?	_____	_____	_____
15. Is he quarrelsome?	_____	_____	_____
16. Is he nervous and keyed up?	_____	_____	_____
	Usually	Occasionally	Seldom or Never
17. Are his feelings easily hurt?	_____	_____	_____
18. Does he like to keep to himself?	_____	_____	_____
19. Does he keep himself clean?	_____	_____	_____
20. Does he respect authority?	_____	_____	_____
21. Is he trustworthy?	_____	_____	_____
	More than others	Same as others	Less than others
22. Does he gripe?	_____	_____	_____
	Excessively	Moderately	Seldom or Never
23. Does he drink alcoholic beverages?	_____	_____	_____
24. Is he a buddy of yours?	_____ Yes	_____ No	_____
25. Do you like him personally?	_____ Yes	_____ No	_____
26. Considering all the (Men) (Officers) in this unit, how would you rate him?	_____		
a. Better than average	Average	Below average	_____

b. Explain in your own words, the reasons for this rating.

27. Write in your own words how this man has changed since you first knew him in this unit.

28. In your own words write a description of this man covering his personality and physical characteristics.

(Signature)

(Grade)



## Part II

(For Officers Only)

For Items 29 thru 34, check the answer which best describes the officer being evaluated. If none of the choices seem to fit very well, check the one which most closely fits him. Write in any qualifications or comments you care to make.

29. Considering all the officers in this unit I would say that over all he is:

<input type="checkbox"/> unusually good	<input type="checkbox"/> fair
<input type="checkbox"/> good	<input type="checkbox"/> poor
	<input type="checkbox"/> very poor

30. His ability to inspire confidence in his men is:

<input type="checkbox"/> unusually good	<input type="checkbox"/> fair
<input type="checkbox"/> good	<input type="checkbox"/> poor
	<input type="checkbox"/> very poor

31. The men in the unit look to him for guidance:

<input type="checkbox"/> when conditions become trying	<input type="checkbox"/> occasionally
<input type="checkbox"/> usually, except under difficult conditions	<input type="checkbox"/> seldom or never

32. The men in the unit:

<input type="checkbox"/> show genuine respect for him and like him	<input type="checkbox"/> like him but do not
<input type="checkbox"/> respect him but dislike him	<input type="checkbox"/> respect him
<input type="checkbox"/> are negative in their attitude toward him	<input type="checkbox"/> make fun of him

33. The morale of the men in his unit is:

<input type="checkbox"/> unusually high	<input type="checkbox"/> about like the others
<input type="checkbox"/> higher than the others	<input type="checkbox"/> lower than in other units
	<input type="checkbox"/> extremely low

34. For duty in a unit under cold and isolated conditions he is:

<input type="checkbox"/> unusually good	<input type="checkbox"/> fair
<input type="checkbox"/> good	<input type="checkbox"/> poor
<input type="checkbox"/> should never have been detailed to such an assignment	

(Over)

35. Considering your rating in Item 34 above, write in your own words your reasons for this rating. Give illustrative examples wherever possible.

(Signature)

(Grade)



Name \_\_\_\_\_

Form D

Interview

Self Evaluation

1. Ambitions \_\_\_\_\_  
Expected length of service \_\_\_\_\_  
Reason \_\_\_\_\_  
Plans for civil life \_\_\_\_\_  
Satisfaction with army grade \_\_\_\_\_

2. Confidence \_\_\_\_\_  
Assumes responsibility \_\_\_\_\_  
Decisiveness \_\_\_\_\_  
Self-reliance \_\_\_\_\_  
3. Motivation \_\_\_\_\_  
Money \_\_\_\_\_ Adventure \_\_\_\_\_  
Climate \_\_\_\_\_ Drafted \_\_\_\_\_  
Patriotism \_\_\_\_\_ Travel \_\_\_\_\_  
4. Reaction toward unit: \_\_\_\_\_  
5. Alcohol (why) \_\_\_\_\_

6. Stubborness \_\_\_\_\_  
7. Selfishness \_\_\_\_\_  
8. Illness - frequency \_\_\_\_\_  
attitude \_\_\_\_\_

Family

Reaction to separation \_\_\_\_\_  
Chief attachment F M B S \_\_\_\_\_  
Antagonism toward F M B S \_\_\_\_\_  
Extreme attachment for F M B S \_\_\_\_\_  
Family Constellation \_\_\_\_\_  
Affectionate \_\_\_\_\_  
Demonstrative \_\_\_\_\_  
Impersonal \_\_\_\_\_  
Other \_\_\_\_\_

Emotions

Temper \_\_\_\_\_  
Tense \_\_\_\_\_  
Cheerful \_\_\_\_\_  
Moody \_\_\_\_\_  
Blue spells \_\_\_\_\_  
Worry \_\_\_\_\_  
Excitable \_\_\_\_\_

Energy

Hard worker \_\_\_\_\_  
Daydreamer \_\_\_\_\_  
Use of spare time \_\_\_\_\_  
Ability to relax \_\_\_\_\_  
Procrastination \_\_\_\_\_  
Fatigue \_\_\_\_\_  
Fitful worker \_\_\_\_\_  
Lazy \_\_\_\_\_  
Other \_\_\_\_\_

Environment

Friends  
Conversational ability  
Argumentative  
Bashful  
Seclusive  
Civil difficulties  
Sensitivity  
Critical

Interest in  
News  
Sports  
Art  
Funnies  
Mechanics  
Literature

Interview Impression

Neatness  
Intelligence  
Cooperation  
Frankness  
Attitude  
Friendly  
Withdrawn  
Resentful  
Hostile  
Indifferent

Sexual Status

Status - S M P W Sep.  
Adaptation to wife  
Adaptation to separation  
Experience

Idiosyncrasies

Summary

I. Personality assets, environmental & cultural supports

II. Personality liabilities, environmental & cultural stresses.

LEGEND: 4 - Possesses trait to marked degree  
3 - Possesses trait to moderate degree  
2 - Possesses trait to average degree  
1 - Possesses trait little or not at all

\_\_\_\_\_  
(Signature) \_\_\_\_\_ M.C.  
(Grade)



## APPENDIX B

### NOTES - APPENDIX B

1. Forms A, B, C, D, E, F and H were originally rated as described in the manual (Appendix A) on a scale of minus four (-4) through plus four (+4) with zero (0) representing a rating of average. In Appendix B these ratings were converted and recorded on a scale of one (1) through nine (9) in order to facilitate computations by the elimination of plus and minus signs. As used in Appendix B, the digit one (1) now corresponds to minus four (-4), the digit nine (9) corresponds to plus four (+4), and the digit five (5) instead of zero (0) now represents the rating for average.

2. The letter "X" is used to indicate that ratings for that item or period were not available.

3. The averages of the objective ratings were used instead of subjective ratings wherever possible. Forms G and I therefore were not used.

4. Scores given for the Otis tests in Phases II and III are standard scores without deduction for practice effect. To make allowance for practice effect, in accordance with the Manual of Directions for the Otis Self-Administering Tests of Mental Ability, four points were deducted from the scores shown for Phases II and III in Appendix B.

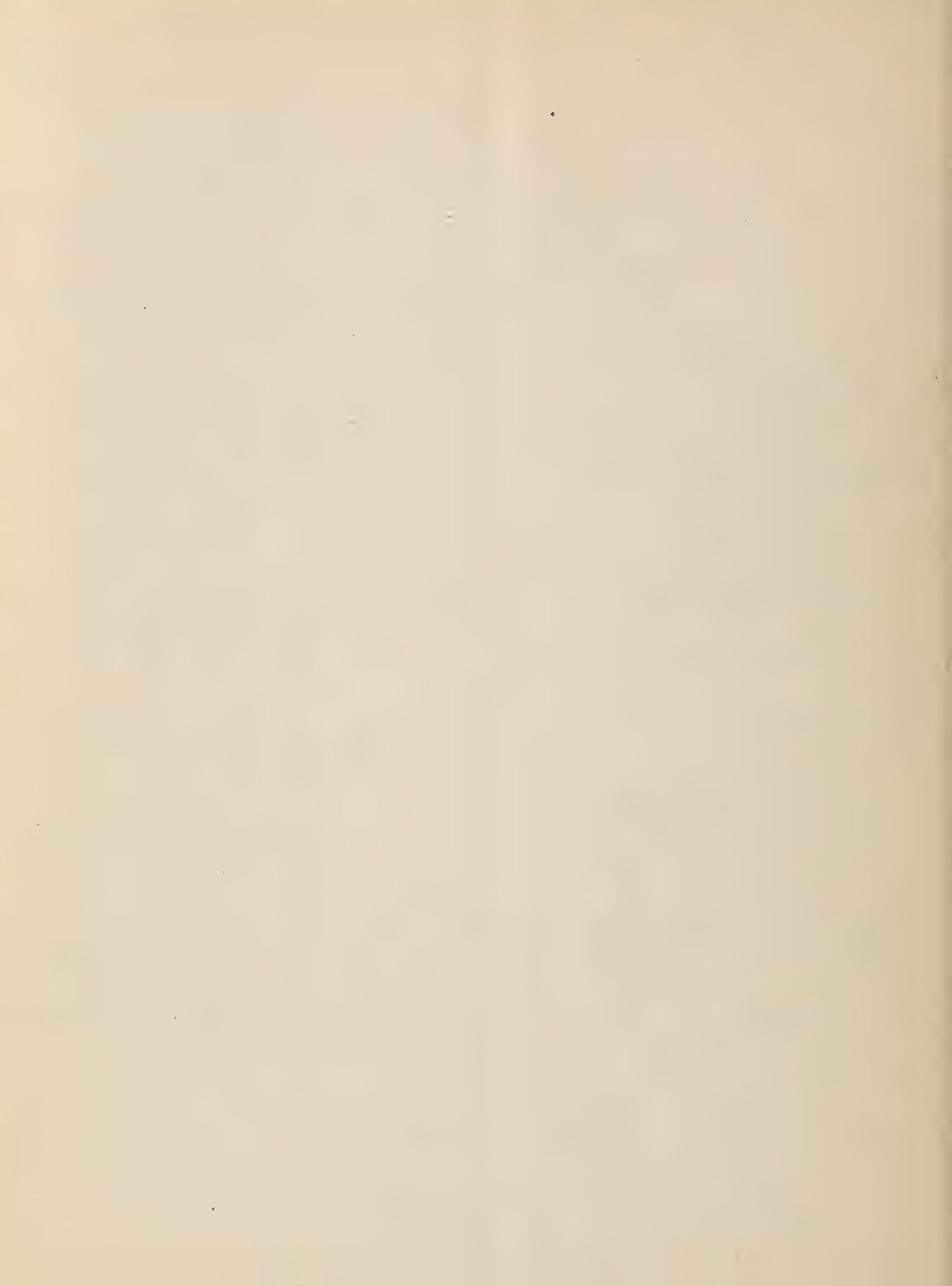




# APPENDIX B

## SUMMARY OF DATA COLLECTED AT FT. CHURCHILL, CANADA ALL CASES STUDIED, WINTER 1947 - 1948

		Phase I																	Phase II		
		Guilford - Martin Battery																	Form		
		Age	Otis	NSA	Form A	Form D	O	AG	CO	G	A	M	I	N	S	T	D	C	R	Otis	D
OFFICERS - CONTROL GROUP																					
I	(9 Cases)	31.1	119.5	26.7	5.3	7.1	6.9	4.7	6.2	5.4	6.9	8.0	6.9	7.4	6.4	5.7	7.9	7.3	5.6	120.8	5.9
II	(1 Case)	39	105	19	4	7	5	4	5	5	7	6	7	6	6	4	6	6	5	X	7
III	(1 Case)	27	126	26	9	9	7	3	5	8	7	10	7	8	8	7	9	9	8	126	8
Total (11 Cases)		31.5	118.5	25.9	5.5	7.3	6.7	4.5	6.0	5.6	6.9	8.0	6.9	7.3	6.5	5.6	7.8	7.4	5.7	121.7	6.2
OFFICERS - EXPERIMENTAL GROUP																					
I	(11 Cases)	34.3	111.9	24.5	4.7	5.9	5.6	4.7	5.3	4.7	5.6	6.5	6.2	5.5	5.5	4.0	6.1	6.3	3.6	113.9	5.9
II	( 1 Case )	28	119	27	9	8	7	6	7	7	6	8	5	4	7	8	8	9	4	X	7
III	( 1 Case )	35	X	28	8	8	3	4	4	5	7	6	4	5	7	3	6	5	7	105	8
Total (13 Cases)		33.8	112.5	25.0	5.3	6.2	5.5	4.8	5.3	4.9	5.8	6.5	5.9	5.4	5.7	4.2	6.2	6.4	3.9	112.9	6.2
ENLISTED - CONTROL GROUP																					
I	(49 Cases)	24.0	101.7	25.5	3.7	4.6	5.2	4.1	4.0	3.9	5.0	6.8	4.9	5.5	5.4	6.2	6.3	6.3	5.1	98.7	5.1
II	(37 Cases)	24.3	95.6	25.0	3.8	3.5	4.7	3.8	3.4	3.8	4.7	6.3	4.0	5.3	4.6	6.2	5.7	6.1	4.8	91.2	4.9
III	( 7 Cases)	28.6	99.4	27.0	4.0	5.6	6.8	6.2	6.0	2.7	5.0	7.5	6.8	7.0	5.4	6.4	7.2	7.4	3.6	96.7	6.3
Total (93 Cases)		24.5	99.2	25.4	3.8	4.2	5.1	4.2	3.9	3.8	4.9	6.7	4.7	5.5	5.1	6.2	6.1	6.3	4.9	95.7	5.1
ENLISTED - EXPERIMENTAL GROUP																					
I	(30 Cases)	27.3	100.8	25.1	3.5	3.3	5.1	4.7	4.3	3.7	5.1	6.6	4.4	5.0	5.3	5.9	5.6	6.0	5.3	100.8	4.4
II	( 3 Cases)	20	96.7	23.7	3.7	3	3.3	4	2.3	3.5	3	4.5	1.5	3.5	4.5	6.5	5	5.5	4.5	92	4
III	( 2 Cases)	36.5	103.5	25.5	4.5	6.5	5.5	5.5	5.5	3.5	4.5	6.5	5.5	6.5	4.5	6.0	5.5	7.0	3.0	101.5	7.0
Total (35 Cases)		27.2	100.6	25.0	3.6	3.5	5.0	4.7	4.2	3.6	4.9	6.5	4.3	5.0	5.2	5.9	5.6	6.0	5.1	100.2	4.6
CONTROL AND EXPERIMENTAL COMBINED																					
Total Officers ( 24 Cases)		32.8	114.9	25.4	5.4	6.7	6.1	4.6	5.6	5.2	6.3	7.2	6.3	6.2	6.1	4.9	7.0	6.8	4.8	116.4	6.2
Total Enlisted (128 Cases)		25.2	99.6	25.3	3.7	4.0	5.1	4.3	4.0	3.8	4.9	6.6	4.6	5.4	5.1	6.2	6.0	6.2	5.0	96.8	5.0
Total Officers and Enlisted (152 Cases)		26.4	101.7	25.3	4.0	4.4	5.3	4.3	4.2	4.0	5.1	6.7	4.9	5.5	5.3	5.9	6.2	6.3	4.9	99.3	5.2
OFFICERS AND ENLISTED COMBINED																					
Total Control (104 Cases)		25.2	100.8	25.5	4.0	4.6	5.3	4.2	4.1	4.0	5.1	6.8	4.9	5.7	5.2	6.2	6.3	6.4	5.0	97.5	5.2
Total Experimental (48 Cases)		29.0	103.7	25.0	4.0	4.2	5.1	4.7	4.5	4.0	5.2	6.5	4.8	5.1	5.3	5.4	5.8	6.1	4.8	103.4	5.0
Total Group I (99 Cases)		26.8	103.8	25.4	3.9	4.6	5.4	4.4	4.4	4.1	5.3	6.8	5.1	5.5	5.5	5.8	6.2	6.3	5.0	102.3	5.1
Total Group II (42 Cases)		24.5	96.5	24.8	3.9	3.7	4.7	3.9	3.5	3.9	4.7	6.3	4.0	5.2	4.7	6.2	5.8	6.2	4.8	91.3	4.9
Total Group III (11 Cases)		30.5	102.9	26.7	4.9	6.3	6.2	5.5	5.6	3.6	5.3	7.4	6.3	6.8	5.7	6.0	6.9	7.2	4.3	101.4	6.7





APPENDIX 3

SUMMARY OF DATA COLLECTED AT FT. CHURCHILL, CANADA  
ALL CASES STUDIED, WINTER 1947 - 1948

		Phase III																		Average Ratings					
		Form B	Form C	Form D	Form E	Form F	Otis	NSA	O	AG	CO	G	A	M	I	N	S	T	D	C	R	Form H	Form D	Otis	NSA
OFFICERS - CONTROL GROUP																									
I	(9 Cases)	5.7	4.9	5.3	4.9	6.8	111.0	27.2	8.7	5.2	7.0	5.7	6.8	8.8	7.7	7.8	7.0	6.2	8.4	8.0	6.4	6.5	6.2	117.9	26.7
II	(1 Case )	3	6	7	1	1	X	24	5	2	5	4	7	6	7	6	6	4	7	7	7	5	7	105	21.5
III	(1 Case )	5	3	X	6	4	X	27	7	3	6	8	7	9	8	8	8	7	9	9	7	8	8.5	126	26.5
Total (11 Cases)		5.0	4.7	5.6	4.6	5.8	111.0	26.8	8.0	4.5	6.6	5.8	6.9	8.5	7.6	7.6	7.0	6.0	8.3	8.0	6.6	6.5	6.5	117.3	26.2
OFFICERS - EXPERIMENTAL GROUP																									
I	(11 Cases)	4.8	5.0	5.6	3.2	3.7	123.2	25.2	5.2	3.9	5.7	4.4	5.2	6.5	5.8	5.3	6.0	5.1	6.4	6.7	3.9	4.8	5.8	111.8	24.9
II	( 1 Case )	3	7	5	1	1	113	24	6	6	6	5	6	7	5	4	7	7	5	7	4	6	6.7	116	25.5
III	( 1 Case )	7	X	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4	7.7	105	28
Total (13 Cases)		4.9	5.2	5.7	3.0	3.5	121.2	25.1	5.3	4.1	5.7	4.5	5.3	6.5	5.7	5.2	6.1	5.3	6.3	6.7	3.9	4.8	6.0	111.6	25.2
ENLISTED - CONTROL GROUP																									
I	(49 Cases)	6.0	5.5	5.5	5.4	5.2	107.6	25.7	6.0	4.6	4.8	3.7	4.8	6.3	5.2	5.4	5.5	6.9	6.5	6.6	5.2	4.1	5.0	100.9	25.5
II	(37 Cases)	5.0	5.3	4.8	6.1	5.8	98.2	25.4	6.2	4.6	3.8	3.5	5.1	7.4	5.2	6.4	5.7	6.9	7.0	7.2	5.6	3.8	4.4	94.7	24.9
III	( 7 Cases)	6.6	6.6	6.0	5.6	5.0	109.0	27.6	6.7	5.6	5.0	2.1	4.6	7.9	6.1	7.3	5.9	7.3	7.7	8.0	5.1	4.9	6.0	100.8	27.4
Total (93 Cases)		5.6	5.5	5.3	5.7	5.4	102.6	25.7	6.1	4.7	4.5	3.5	4.9	6.8	5.3	5.9	5.7	6.9	6.9	7.1	5.4	4.0	4.8	98.4	25.4
ENLISTED - EXPERIMENTAL GROUP																									
I	(30 Cases)	5.5	5.1	4.8	4.8	5.1	103.1	25.5	5.8	4.9	4.7	3.4	4.8	6.9	5.1	5.7	5.2	6.5	6.0	6.0	5.1	3.7	3.8	100.7	25.1
II	( 3 Cases)	5.7	5.3	3	6	4.5	99	X	5	8	4	X	X	X	X	X	6	6	7	6	7	3	3.6	96.2	23.7
III	( 2 Cases)	7.5	7.0	7.0	7.0	6.0	118.0	26.0	8.0	6.0	5.0	2.0	5.0	8.5	6.5	8.0	5.0	6.0	7.0	8.0	3.5	5.2	6.8	101.3	25.8
Total (35 Cases)		5.6	5.3	4.9	5.0	5.1	103.9	25.6	5.9	5.1	4.7	3.3	4.8	7.0	5.2	5.8	5.2	6.5	6.1	6.2	5.0	3.7	3.9	100.4	25.0
CONTROL AND EXPERIMENTAL COMBINED																									
Total Officers ( 24 Cases)		4.9	5.0	5.6	3.7	4.4	119.5	25.8	6.5	4.3	6.1	5.0	5.9	7.4	6.5	6.2	6.5	5.6	7.1	7.2	5.0	5.6	6.2	113.9	25.7
Total Enlisted (128 Cases)		5.6	5.5	5.2	5.5	5.3	102.9	25.7	6.1	4.8	4.5	3.5	4.8	6.9	5.3	5.9	5.5	6.8	6.7	6.8	5.3	3.9	4.6	99.0	25.3
Total Officers and Enlisted (152 Cases)		5.6	5.4	5.2	5.2	5.2	104.5	25.7	6.1	4.7	4.7	3.7	5.0	7.0	5.5	6.0	5.7	6.6	6.7	6.9	5.2	4.2	4.8	101.2	25.4
OFFICERS AND ENLISTED COMBINED																									
Total Control (104 Cases)		5.6	5.5	5.3	5.6	5.4	102.8	25.8	6.3	4.7	4.7	3.7	5.0	7.0	5.5	6.1	5.8	6.8	7.0	7.2	5.5	4.3	5.0	100.1	25.5
Total Experimental (48 Cases)		5.4	5.3	5.1	4.5	4.7	108.4	25.4	5.7	4.8	4.9	3.6	4.9	6.9	5.4	5.6	5.5	6.1	6.1	6.4	4.7	4.0	4.5	103.4	25.1
Total Group I (99 Cases)		5.7	5.3	5.3	4.9	5.1	108.0	25.7	6.0	4.7	5.0	3.8	5.0	6.7	5.4	5.6	5.6	6.4	6.5	6.5	5.1	4.3	4.8	103.3	25.4
Total Group II (42 Cases)		5.0	5.4	4.8	5.8	5.5	98.8	25.3	6.2	4.6	3.9	3.6	5.2	7.3	5.3	6.3	5.8	6.8	6.9	7.2	5.6	3.8	4.4	95.6	24.8
Total Group III (11 Cases)		6.6	6.3	6.3	5.9	5.1	110.8	27.2	7.0	5.4	5.1	2.7	4.9	8.1	6.4	7.5	5.9	7.0	7.7	8.1	5.0	5.1	6.5	103.5	27.0





APPENDIX C

TABLE I

Distribution of Cases Studied

	Control Group		Experimental Group		
Time of Arrival	Volunteer		Non-Volunteer		Total
	Officers	Enlisted	Officers	Enlisted	
I	9	49	11	30	99
II	1	37	1	3	42
III	1	7	1	2	11
Total	11	93	13	35	152

Group I - Arrived during October, November or December 1947

Group II - Arrived during April, May, July or August 1947

Group III - Arrived during November or December 1946

# TABLE II

## BEER CONSUMPTION

Total, Officer and Enlisted Men  
(U. S. and Canadian)  
Fort Churchill  
Winter 1947-1948

<u>Month</u>	<u>Pints Consumed</u>
Nov. 1947	30,624
Dec. 1947	32,304
Jan. 1948	37,872
Feb. 1948	39,120
Mar. 1948	39,408

## LIQUOR CONSUMPTION

Total Officers  
(U. S. and Canadian)  
Fort Churchill  
Winter 1947-1948

<u>Month</u>	<u>26 oz. Bottles Consumed</u>
Nov. 1947	243
Dec. 1947	332
Jan. 1948	553
Feb. 1948	431
Mar. 1948	312



TABLE III

EVALUATION OF PERFORMANCE AND ADJUSTMENT FOR ALL  
OFFICERS AND ENLISTED PERSONNEL AT VARIOUS I.Q.  
LEVELS. OFFICERS RATED BY HIGHER GRADE OFFICERS,  
AND ENLISTED MEN RATED BY OFFICERS.  
FORT CHURCHILL, 1947 - 1948

I.Q. Groups	Number Cases	Performance and Adjustment (Form B)			
		Average and Above		Below Average	
		Number Cases	Percent	Number Cases	Percent
121-133	14	13	93	1	7
111-120	23	13	57	10	43
101-110	37	29	78	8	22
91-100	32	22	69	10	31
81-90	20	14	70	6	30
71-80	13	10	77	3	23
70 and less	4	2	50	2	50
Over 100	74	55	74	19	26
100 and less	69	48	70	21	30
Total	143*	103	72	40	28

\* Nine cases of total study group omitted because intelligence test scores or Form B ratings not available.

TABLE IV

EVALUATION OF PERFORMANCE AND ADJUSTMENT  
BY PSYCHIATRIST FOR ALL OFFICERS AND  
ENLISTED PERSONNEL AT VARIOUS I.Q. LEVELS,  
FORT CHURCHILL, 1947 - 1948

I.Q. Groups	Number Cases	Psychiatric Evaluation (Form D)			
		Average and Above		Below Average	
		Number Cases	Percent	Number Cases	Percent
121-133	18	15	83	3	17
111-120	24	16	67	8	33
101-110	38	30	79	8	21
91-100	32	19	59	13	41
81-90	20	11	55	9	45
71-80	13	5	38	8	62
70 and less	4	1	25	3	75
Over 100	80	61	76	19	24
100 and less	69	36	52	33	48
Total	149*	97	65	52	35

\* Three cases of total study group omitted because intelligence test scores not available.



## TABLE V

## TOTALS

FORM E

## OPINION POLL

INSTRUCTIONS: These are questions about how you have changed since you have been in this unit. Check each one.

	No. % <u>MORE</u>	No. % <u>LESS</u>	No. % <u>NO CHANGE</u>
1. Do you feel that you have become more ambitious, or less ambitious?	31 22	36 26	72 52
2. Are you inclined to be more moody, or less moody?	34 24	25 18	80 58
3. Have you felt more thwarted or held down than before, or less so?	37 26	29 21	74 53
4. Since coming into this unit are you inclined to be more cheerful, or less cheerful?	24 17	30 21	86 62
5. Have your experiences made you more hardboiled in your attitude toward others, or less hardboiled?	29 21	28 20	83 59
6. Do you feel more regretful and sorry about things that have happened to you, or do you feel less sorry?	14 10	32 23	94 67
7. Do you tend to get angry more easily than you did before, or less easily?	42 30	23 16	75 54
8. Are you more self-confident since coming into this unit, or less self-confident?	51 36	18 13	71 51
9. Are you inclined to be more disgusted with things in general or less so?	48 34	26 19	66 47
10. Do you tend to be more optimistic in your viewpoints, or less optimistic?	33 24	23 16	84 60
11. Do you feel that your life in this unit has made you more satisfied or less satisfied?	48 34	30 21	63 45
12. Are you more happy, or less happy?	29 21	35 25	76 54
13. Are you more restless, or less restless?	45 32	27 19	69 49
14. Have you become more sociable, or less sociable?	34 24	20 14	86 62
15. Do you feel more able to take responsibility, or less able?	68 49	6 4	66 47

	<u>No. %</u> <u>MORE</u>		<u>No. %</u> <u>LESS</u>		<u>No. %</u> <u>NO CHANGE</u>	
16. Do you feel more independent or less independent?	45	33	9	7	84	60
17. Do you feel depressed more often or less often?	27	20	21	15	90	65
18. Do you feel more tolerant of other people, or less tolerant?	36	26	20	14	83	60
19. Are you more critical of others, or less critical?	24	17	27	19	88	64
20. Do you tend to be more easily annoyed by people, or less easily annoyed?	38	27	28	20	73	53
21. Do you worry more often, or less often?	23	16	34	24	85	60
22. Do you resent being told what to do more than you did before, or do you resent it less?	20	14	31	22	87	64
23. Can you concentrate and keep your mind on what you are doing more easily, or less easily?	40	29	25	18	74	53
24. Do you feel more cooperative toward others, or less cooperative?	57	41	15	11	67	48
25. Do you criticize yourself more often than you used to, or less often?	30	22	14	10	94	68
26. Do you have more patience, or less patience?	40	29	32	23	66	48
27. Do you feel more tense and keyed up more often than you used to or less often?	40	29	27	19	72	52
28. Do you have more perseverance or are you unable to keep at things you are doing?	33	24	17	12	89	64
29. Do you have more and wider interests now than you used to have, or are your interests less wide?	60	43	24	17	55	40
Total	1080*		712*		2252	56%

(Signature)

(Grade)

\*Percentages for columns headed "More" and "Less" were not computed because each answer was analyzed separately in terms of changes "Favorable" and "Unfavorable" which are discussed in the text.



TABLE VI  
CONTROL  
(VOLUNTEER)  
OPINION POLL

FORM E

INSTRUCTIONS: These are questions about how you have changed since you have been in this unit. Check each one.

	No. % <u>MORE</u>		No. % <u>LESS</u>		No. % <u>NO CHANGE</u>	
1. Do you feel that you have become more ambitious, or less ambitious?	25	26	24	25	46	49
2. Are you inclined to be more moody, or less moody?	24	25	17	18	54	57
3. Have you felt more thwarted or held down than before, or less so?	20	21	25	26	51	53
4. Since coming into this unit are you inclined to be more cheerful, or less cheerful?	18	19	20	21	58	60
5. Have your experiences made you more hardboiled in your attitude toward others, or less hardboiled?	16	17	21	22	59	61
6. Do you feel more regretful and sorry about things that have happened to you, or do you feel less sorry?	9	9	26	27	61	64
7. Do you tend to get angry more easily than you did before, or less easily?	29	30	15	16	52	54
8. Are you more self-confident since coming into this unit, or less self-confident?	38	40	16	17	42	43
9. Are you inclined to be more disgusted with things in general or less so?	29	30	19	20	48	50
10. Do you tend to be more optimistic in your viewpoints, or less optimistic?	26	27	12	12	58	61
11. Do you feel that your life in this unit has made you more satisfied or less satisfied?	36	37	14	14	47	49
12. Are you more happy, or less happy?	22	23	20	21	54	56
13. Are you more restless, or less restless?	27	28	17	18	53	54
14. Have you become more sociable, or less sociable?	23	24	11	11	62	65
15. Do you feel more able to take responsibility, or less able?	50	52	5	5	41	43

	No. % <u>MORE</u>	No. % <u>LESS</u>	No. % <u>NO CHANGE</u>
16. Do you feel more independent or less independent?	34   36	7   7	54   57
17. Do you feel depressed more often or less often?	17   18	16   17	61   65
18. Do you feel more tolerant of other people, or less tolerant?	22   23	14   15	59   62
19. Are you more critical of others, or less critical?	13   14	22   23	60   63
20. Do you tend to be more easily annoyed by people, or less easily annoyed?	22   23	20   21	53   56
21. Do you worry more often, or less often?	15   16	24   25	56   59
22. Do you resent being told what to do more than you did before, or do you resent it less?	12   13	26   27	57   60
23. Can you concentrate and keep your mind on what you are doing more easily, or less easily?	34   36	16   17	45   47
24. Do you feel more cooperative toward others, or less cooperative?	41   43	9   9	45   48
25. Do you criticize yourself more often than you used to, or less often?	20   21	8   9	66   70
26. Do you have more patience, or less patience?	33   35	16   17	46   48
27. Do you feel more tense and keyed up more often than you used to or less often?	23   24	18   19	53   57
28. Do you have more perseverance or are you unable to keep at things you are doing?	21   22	11   12	63   66
29. Do you have more and wider interests now than you used to have, or are your interests less wide?	47   49	8   8	40   43
Total	746*	477*	1544   56%

(Signature)

(Grade)

\*Percentages for columns headed "More" and "Less" were not computed because each answer was analyzed separately in terms of changes "Favorable" and "Unfavorable" which are discussed in the text.



TABLE VII

FORM E

EXPERIMENTALS  
(NON-VOLUNTEER)  
OPINION POLL

INSTRUCTIONS: These are questions about how you have changed since you have been in this unit. Check each one.

	No. % <u>MORE</u>	No. % <u>LESS</u>	No. % <u>NO CHANGE</u>
1. Do you feel that you have become more ambitious, or less ambitious?	<u>6</u> <u>14</u>	<u>12</u> <u>27</u>	<u>26</u> <u>59</u>
2. Are you inclined to be more moody, or less moody?	<u>10</u> <u>23</u>	<u>8</u> <u>18</u>	<u>26</u> <u>59</u>
3. Have you felt more thwarted or held down than before, or less so?	<u>17</u> <u>39</u>	<u>4</u> <u>9</u>	<u>23</u> <u>52</u>
4. Since coming into this unit are you inclined to be more cheerful, or less cheerful?	<u>6</u> <u>14</u>	<u>10</u> <u>23</u>	<u>28</u> <u>63</u>
5. Have your experiences made you more hardboiled in your attitude toward others, or less hardboiled?	<u>13</u> <u>30</u>	<u>7</u> <u>16</u>	<u>24</u> <u>54</u>
6. Do you feel more regretful and sorry about things that have happened to you, or do you feel less sorry?	<u>5</u> <u>11</u>	<u>6</u> <u>14</u>	<u>33</u> <u>75</u>
7. Do you tend to get angry more easily than you did before, or less easily?	<u>13</u> <u>30</u>	<u>8</u> <u>18</u>	<u>23</u> <u>52</u>
8. Are you more self-confident since coming into this unit, or less self-confident?	<u>13</u> <u>30</u>	<u>2</u> <u>5</u>	<u>29</u> <u>65</u>
9. Are you inclined to be more disgusted with things in general or less so?	<u>19</u> <u>43</u>	<u>7</u> <u>16</u>	<u>18</u> <u>41</u>
10. Do you tend to be more optimistic in your viewpoints, or less optimistic?	<u>7</u> <u>16</u>	<u>11</u> <u>25</u>	<u>26</u> <u>59</u>
11. Do you feel that your life in this unit has made you more satisfied or less satisfied?	<u>12</u> <u>27</u>	<u>16</u> <u>36</u>	<u>16</u> <u>37</u>
12. Are you more happy, or less happy?	<u>7</u> <u>16</u>	<u>15</u> <u>34</u>	<u>22</u> <u>50</u>
13. Are you more restless, or less restless?	<u>18</u> <u>41</u>	<u>10</u> <u>23</u>	<u>16</u> <u>36</u>
14. Have you become more sociable, or less sociable?	<u>11</u> <u>25</u>	<u>9</u> <u>20</u>	<u>24</u> <u>55</u>
15. Do you feel more able to take responsibility, or less able?	<u>18</u> <u>41</u>	<u>1</u> <u>2</u>	<u>25</u> <u>57</u>

	<u>No. %</u> <u>MORE</u>		<u>No. %</u> <u>LESS</u>		<u>No. %</u> <u>NO CHANGE</u>	
16. Do you feel more independent or less independent?	<u>11</u>	26	<u>2</u>	5	<u>30</u>	69
17. Do you feel depressed more often or less often?	<u>10</u>	23	<u>5</u>	11	<u>29</u>	66
18. Do you feel more tolerant of other people, or less tolerant?	<u>14</u>	32	<u>6</u>	14	<u>24</u>	54
19. Are you more critical of others, or less critical?	<u>11</u>	25	<u>5</u>	11	<u>28</u>	64
20. Do you tend to be more easily annoyed by people, or less easily annoyed?	<u>16</u>	36	<u>8</u>	18	<u>20</u>	46
21. Do you worry more often, or less often?	<u>8</u>	17	<u>10</u>	21	<u>29</u>	62
22. Do you resent being told what to do more than you did before, or do you resent it less?	<u>8</u>	19	<u>5</u>	12	<u>30</u>	69
23. Can you concentrate and keep your mind on what you are doing more easily, or less easily?	<u>6</u>	14	<u>9</u>	20	<u>29</u>	66
24. Do you feel more cooperative toward others. or less cooperative?	<u>16</u>	36	<u>6</u>	14	<u>22</u>	50
25. Do you criticize yourself more often than you used to, or less often?	<u>10</u>	23	<u>6</u>	14	<u>28</u>	63
26. Do you have more patience, or less patience?	<u>7</u>	16	<u>16</u>	37	<u>20</u>	47
27. Do you feel more tense and keyed up more often than you used to or less often?	<u>17</u>	38	<u>9</u>	20	<u>19</u>	42
28. Do you have more perseverance or are you unable to keep at things you are doing?	<u>12</u>	27	<u>6</u>	14	<u>26</u>	59
29. Do you have more and wider interests now than you used to have, or are your interests less wide?	<u>13</u>	30	<u>16</u>	36	<u>15</u>	34
Total	<u>334</u>	*	<u>235</u>	*	<u>708</u>	55%

(Signature)

(Grade)

\*Percentages for columns headed "More" and "Less" were not computed because each answer was analyzed separately in terms of changes "Favorable" and "Unfavorable" which are discussed in the text.



TABLE VIII

Total Number Answers  
Reporting Changes in Attitudes and Personality,  
Interpreted in Terms of Favorable or Unfavorable

		<u>Favorable</u>	<u>Unfavorable</u>
Total	No. answer	1001	791
Control and Experimental	%	56	44
Control	No. answer	744	479
	%	61	39
Experimental	No. answer	257	312
	%	45	55





TABLE IX  
TOTALS

FORM F

ATTITUDE QUESTIONNAIRE

We are studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency and health of enlisted men. We are as interested in adjusting men to this climate as we are in adjusting equipment. You can help us greatly in this project by answering the following questionnaire as frankly and fully as possible. Only by letting us know your own personal reactions, can we hope to grasp the problems involved in your adjustment and the necessary steps to be taken for their solution. Use separate sheets for your answers and number each answer carefully.

	<u>%</u>	<u>YES</u>	<u>NO</u>	<u>%</u>
1. Were you used to cold weather on arrival?	41	<u>57</u>	<u>82</u>	59
2. Do you like winter sports?	78	<u>107</u>	<u>30</u>	22
3. Are you used to cold weather now?	86	<u>119</u>	<u>20</u>	14
4. Did you volunteer for this assignment?	68	<u>95</u>	<u>44</u>	32
5. Did you find the work situation that you expected?	38	<u>53</u>	<u>85</u>	62
6. Are you satisfied with the work situation?	53	<u>72</u>	<u>65</u>	47
7. Did you find the housing as you expected?	45	<u>63</u>	<u>76</u>	55
8. Are you satisfied with the housing conditions?	47	<u>65</u>	<u>74</u>	53
9. Are you satisfied with the meals here?	60	<u>84</u>	<u>55</u>	40
10. Do you get enough to eat?	88	<u>121</u>	<u>16</u>	12
11. Do you like the type of food you get?	58	<u>78</u>	<u>57</u>	42
12. Do you have a good appetite?	91	<u>126</u>	<u>13</u>	9
13. Have you noticed any change in your food likes or dislikes?	35 48	<u>48</u>	<u>91</u>	05
14. Do you find yourself in need of something to do in your spare time?	42	<u>58</u>	<u>80</u>	58
15. Are recreational facilities adequate?	37	<u>50</u>	<u>84</u>	63
16. Do you like to visit nearby villages?	63	<u>85</u>	<u>49</u>	37
17. Are the hardships of this climate frequently discussed?	64	<u>89</u>	<u>49</u>	36
18. Are you interested in your work?	85	<u>115</u>	<u>21</u>	15
19. Do you feel that officers or associates have it "in for you"?	4	<u>5</u>	<u>131</u>	96

	<u>%</u>	<u>YES</u>	<u>NO</u>	<u>%</u>
20. Are your officers tolerant and understanding?	90	<u>115</u>	<u>13</u>	10
21. Have you noticed any change in your reasoning power?	25	<u>35</u>	<u>103</u>	75
22. Have you noticed any change in your memory?	25	<u>35</u>	<u>103</u>	75
23. Are you restless?	38	<u>52</u>	<u>86</u>	62
24. Are you irritable?	29	<u>39</u>	<u>95</u>	71
25. Are you apprehensive?	29	<u>38</u>	<u>92</u>	71
26. Do you have any trouble sleeping?	13	<u>18</u>	<u>120</u>	87
27. Do you have any dreams or nightmares?	31	<u>42</u>	<u>92</u>	69
28. Have you noticed any change in your drive or enthusiasm?	35	<u>48</u>	<u>89</u>	65
29. Are you afraid of getting lost?	1	<u>2</u>	<u>136</u>	99
30. Do you get lost easily?	5	<u>7</u>	<u>130</u>	95
31. Have you ever been lost?	37	<u>51</u>	<u>86</u>	63
32. Do you feel that you would be found if you were to get lost?	93	<u>123</u>	<u>9</u>	7
33. Do you frequently get lost in this climate?	5	<u>7</u>	<u>128</u>	95
34. Do you take adequate precautions to dress properly?	91	<u>126</u>	<u>12</u>	9
35. Do you feel that this climate is dangerous to life and health?	20	<u>27</u>	<u>109</u>	80
36. Would you say that the majority have the same attitude as you concerning this experiment?	81	<u>105</u>	<u>24</u>	19
37. Is sex a problem with you?	17	<u>23</u>	<u>111</u>	83
38. Have you been able to find sex gratification at nearby villages?	17	<u>23</u>	<u>109</u>	83
39. Do you go on sick call?	31	<u>43</u>	<u>94</u>	69
40. Do you like the drinking water?	52	<u>71</u>	<u>65</u>	48
41. Do you feel that the work you are doing is important?	89	<u>120</u>	<u>15</u>	11
42. Do you feel that you have been given sufficient credit for the work you are doing?	81	<u>108</u>	<u>25</u>	19
43. Do you object to this questionnaire?	10	<u>13</u>	<u>119</u>	90

(Signature)

(Grade)

CONTROL  
(VOLUNTEERS)  
ATTITUDE QUESTIONNAIRE

We are studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency and health of enlisted men. We are as interested in adjusting men to this climate as we are in adjusting equipment. You can help us greatly in this project by answering the following questionnaire as frankly and fully as possible. Only by letting us know your own personal reactions, can we hope to grasp the problems involved in your adjustment and the necessary steps to be taken for their solution. Use separate sheets for your answers and number each answer carefully.

	<u>%</u>	<u>YES</u>	<u>NO</u>	<u>%</u>
1. Were you used to cold weather on arrival?	45	<u>43</u>	<u>52</u>	55
2. Do you like winter sports?	85	<u>79</u>	<u>14</u>	15
3. Are you used to cold weather now?	91	<u>86</u>	<u>9</u>	9
4. Did you volunteer for this assignment?	100	<u>95</u>	<u>0</u>	0
5. Did you find the work situation that you expected?	44	<u>42</u>	<u>53</u>	56
6. Are you satisfied with the work situation?	61	<u>57</u>	<u>37</u>	39
7. Did you find the housing as you expected?	49	<u>47</u>	<u>48</u>	51
8. Are you satisfied with the housing conditions?	51	<u>48</u>	<u>47</u>	49
9. Are you satisfied with the meals here?	59	<u>56</u>	<u>39</u>	41
10. Do you get enough to eat?	87	<u>81</u>	<u>12</u>	13
11. Do you like the type of food you get?	60	<u>55</u>	<u>37</u>	40
12. Do you have a good appetite?	92	<u>87</u>	<u>8</u>	8
13. Have you noticed any change in your food likes or dislikes?	<sup>35</sup> 33	<u>33</u>	<u>62</u>	65
14. Do you find yourself in need of something to do in your spare time?	45	<u>42</u>	<u>52</u>	55
15. Are recreational facilities adequate?	42	<u>38</u>	<u>53</u>	58
16. Do you like to visit nearby villages?	63	<u>57</u>	<u>33</u>	37
17. Are the hardships of this climate frequently discussed?	61	<u>57</u>	<u>37</u>	39
18. Are you interested in your work?	89	<u>83</u>	<u>10</u>	11
19. Do you feel that officers or associates have it "in for you"?	5	<u>5</u>	<u>90</u>	95



	<u>%</u>	<u>YES</u>	<u>NO</u>	<u>%</u>
20. Are your officers tolerant and understanding?	92	<u>82</u>	<u>7</u>	8
21. Have you noticed any change in your reasoning power?	28	<u>26</u>	<u>68</u>	72
22. Have you noticed any change in your memory?	24	<u>23</u>	<u>71</u>	76
23. Are you restless?	31	<u>29</u>	<u>65</u>	69
24. Are you irritable?	27	<u>25</u>	<u>66</u>	73
25. Are you apprehensive?	30	<u>27</u>	<u>64</u>	70
26. Do you have any trouble sleeping?	14	<u>13</u>	<u>81</u>	86
27. Do you have any dreams or nightmares?	25	<u>23</u>	<u>68</u>	75
28. Have you noticed any change in your drive or enthusiasm?	37	<u>34</u>	<u>59</u>	63
29. Are you afraid of getting lost?	2	<u>2</u>	<u>92</u>	98
30. Do you get lost easily?	4	<u>4</u>	<u>89</u>	96
31. Have you ever been lost?	34	<u>32</u>	<u>61</u>	66
32. Do you feel that you would be found if you were to get lost?	93	<u>85</u>	<u>6</u>	7
33. Do you frequently get lost in this climate?	6	<u>6</u>	<u>87</u>	94
34. Do you take adequate precautions to dress properly?	91	<u>86</u>	<u>8</u>	9
35. Do you feel that this climate is dangerous to life and health?	20	<u>18</u>	<u>74</u>	80
36. Would you say that the majority have the same attitude as you concerning this experiment?	83	<u>73</u>	<u>15</u>	17
37. Is sex a problem with you?	17	<u>16</u>	<u>76</u>	83
38. Have you been able to find sex gratification at nearby villages?	18	<u>16</u>	<u>73</u>	82
39. Do you go on sick call?	33	<u>31</u>	<u>62</u>	67
40. Do you like the drinking water?	49	<u>46</u>	<u>47</u>	51
41. Do you feel that the work you are doing is important?	91	<u>86</u>	<u>8</u>	9
42. Do you feel that you have been given sufficient credit for the work you are doing?	88	<u>80</u>	<u>11</u>	12
43. Do you object to this questionnaire?	12	<u>11</u>	<u>79</u>	88

(Signature)

(Grade)

TABLE XI  
EXPERIMENTALS  
(NON-VOLUNTEERS)

FORM F

ATTITUDE QUESTIONNAIRE

We are studying the effects of extremely cold climate and limited environmental conditions on the morale, efficiency and health of enlisted men. We are as interested in adjusting men to this climate as we are in adjusting equipment. You can help us greatly in this project by answering the following questionnaire as frankly and fully as possible. Only by letting us know your own personal reactions, can we hope to grasp the problems involved in your adjustment and the necessary steps to be taken for their solution. Use separate sheets for your answers and number each answer carefully.

	<u>%</u>	<u>YES</u>	<u>NO</u>	<u>%</u>
1. Were you used to cold weather on arrival?	32	<u>14</u>	<u>30</u>	68
2. Do you like winter sports?	64	<u>28</u>	<u>16</u>	36
3. Are you used to cold weather now?	75	<u>33</u>	<u>11</u>	25
4. Did you volunteer for this assignment?	0	<u>0</u>	<u>44</u>	100
5. Did you find the work situation that you expected?	26	<u>11</u>	<u>32</u>	74
6. Are you satisfied with the work situation?	35	<u>15</u>	<u>28</u>	65
7. Did you find the housing as you expected?	36	<u>16</u>	<u>28</u>	64
8. Are you satisfied with the housing conditions?	39	<u>17</u>	<u>27</u>	61
9. Are you satisfied with the meals here?	64	<u>28</u>	<u>16</u>	36
10. Do you get enough to eat?	91	<u>40</u>	<u>4</u>	9
11. Do you like the type of food you get?	53	<u>23</u>	<u>20</u>	47
12. Do you have a good appetite?	89	<u>39</u>	<u>5</u>	11
13. Have you noticed any change in your food likes or dislikes?	<sup>34</sup> 34	<u>15</u>	<u>29</u>	66
14. Do you find yourself in need of something to do in your spare time?	36	<u>16</u>	<u>28</u>	64
15. Are recreational facilities adequate?	28	<u>12</u>	<u>31</u>	72
16. Do you like to visit nearby villages?	64	<u>28</u>	<u>16</u>	36
17. Are the hardships of this climate frequently discussed?	<sup>73</sup> 73	<u>32</u>	<u>12</u>	27
18. Are you interested in your work?	74	<u>32</u>	<u>11</u>	26
19. Do you feel that officers or associates have it "in for you"?	0	<u>0</u>	<u>41</u>	100



	<u>&amp;</u>	<u>YES</u>	<u>NO</u>	<u>&amp;</u>
20. Are your officers tolerant and understanding?	85	<u>33</u>	<u>6</u>	15
21. Have you noticed any change in your reasoning power?	20	<u>9</u>	<u>35</u>	80
22. Have you noticed any change in your memory?	27	<u>12</u>	<u>32</u>	73
23. Are you restless?	52	<u>23</u>	<u>21</u>	48
24. Are you irritable?	33	<u>14</u>	<u>29</u>	67
25. Are you apprehensive?	28	<u>11</u>	<u>28</u>	72
26. Do you have any trouble sleeping?	11	<u>5</u>	<u>39</u>	89
27. Do you have any dreams or nightmares?	44	<u>19</u>	<u>24</u>	56
28. Have you noticed any change in your drive or enthusiasm?	32	<u>14</u>	<u>30</u>	68
29. Are you afraid of getting lost?	0	<u>0</u>	<u>44</u>	100
30. Do you get lost easily?	7	<u>3</u>	<u>41</u>	93
31. Have you ever been lost?	43	<u>19</u>	<u>25</u>	57
32. Do you feel that you would be found if you were to get lost?	93	<u>38</u>	<u>3</u>	7
33. Do you frequently get lost in this climate?	2	<u>1</u>	<u>41</u>	98
34. Do you take adequate precautions to dress properly?	91	<u>40</u>	<u>4</u>	9
35. Do you feel that this climate is dangerous to life and health?	20	<u>9</u>	<u>35</u>	80
36. Would you say that the majority have the same attitude as you concerning this experiment?	78	<u>32</u>	<u>9</u>	22
37. Is sex a problem with you?	17	<u>7</u>	<u>35</u>	83
38. Have you been able to find sex gratification at nearby villages?	16	<u>7</u>	<u>36</u>	84
39. Do you go on sick call?	27	<u>12</u>	<u>32</u>	73
40. Do you like the drinking water?	58	<u>25</u>	<u>18</u>	42
41. Do you feel that the work you are doing is important?	83	<u>34</u>	<u>7</u>	17
42. Do you feel that you have been given sufficient credit for the work you are doing?	67	<u>28</u>	<u>14</u>	33
43. Do you object to this questionnaire?	5	<u>2</u>	<u>40</u>	95

(Signature)

(Grade)



TABLE XII

REPLIES TO ATTITUDE QUESTIONNAIRE (FORM F)  
 GROUPED BY SUBJECT AND SHOWN AS PERCENT  
 FAVORABLE AND PERCENT UNFAVORABLE  
 FT. CHURCHILL 1947 - 1948

	Percent Favorable	Percent Unfavorable
<u>PHYSICAL AND MENTAL WELL BEING</u> (Questions - 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 37, 39)		
Control Group	79	21
Experimental Group	76	24
Total	78	22
<u>WORK</u> (Questions 5, 6, 18, 19, 20, 41, 42)		
Control Group	80	20
Experimental Group	66	34
Total	76	24
<u>WEATHER</u> (Questions 1, 2, 3, 34, 35)		
Control Group	78	22
Experimental Group	68	32
Total	75	25
<u>FOOD AND WATER</u> (Questions 9, 10, 11, 12, 40)		
Control Group	69	31
Experimental Group	71	29
Total	70	30
<u>RECREATION</u> (Questions 14, 15, 16)		
Control Group	53	47
Experimental Group	52	48
Total	53	47
<u>HOUSING</u> (Questions 7 and 8)		
Control Group	50	50
Experimental Group	38	62
Total	46	54
<u>ALL CATEGORIES</u>		
Control Group	74	26
Experimental Group	69	31
Total	72	28

Note: Questions 4, 13, 17, 36, 38, and 43 are information questions not treated as "favorable" or "unfavorable."



